MULTI-STEP BIDDING PROCESS
FOR
GENERAL CONTRACTORS

Single Project---Short-Listing

Request for Submittals

January 13, 2009

EAST CANYON STATE PARK RECREATION REHABILITATION PHASE III

DIVISION OF PARKS & RECREATION

MORGAN, UTAH

DFCM Project Number 04015510

U.S. Department of the Interior
Bureau of Reclamation

TABLE OF CONTENTS

NOTICE TO CONTRACTORS

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting submissions for the following project:

Project Name: **East Canyon State Park Recreation Rehabilitation - Phase III**
Division of Parks & Recreation – Morgan, Utah

Project No. **04015510**

Project Description: Construct and complete East Canyon State Park, Facility Improvements - Phase III in accordance with contract provisions, specifications, and drawings. The majority of the work includes excavation, paving and concrete work.

Cost Estimate: **$1,100,000**

DFCM is entering into a Multi-Step Bidding Process for Construction services. A short-listing of contractors will be based on the selection criteria outlined in the bidding documents contained herein. Short-listed contractors will be invited to submit bids on the project described above. **The only contractors allowed to bid on this project will be contractors short-listed by the selection committee.**

All contractors responding to this procurement must comply with and require all of their subcontractors to comply with the license laws as required by the State of Utah.

The bidding documents including plans and specification, short-listing requirements and schedule will be available at **10:00 AM** on **Tuesday, January 13, 2009** on the DFCM web page at http://dfcm.utah.gov and from DFCM, 4110 State Office Building, Salt Lake City, Utah 84114, telephone (801) 538-3018. For questions regarding this solicitation, please contact **Darrell Hunting**, DFCM, at (801) 244-7647. No others are to be contacted regarding this solicitation.

A **mandatory** pre-submittal meeting to discuss the multi-step bidding process will be held at **1:30 PM** on **Tuesday, January 20, 2009** at DNR Building – 1594 W. North Temple – Salt Lake City, UT. 84114 – Room # 1010

When bidding on this project, short-listed contractors will be required to submit a Bid Bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's Bid Bond Form. A Bid Bond must accompany each bid.

The Division of Facilities Construction & Management reserves the right to reject any or all submittals/bids or to waive any formality or technicality in any submittal/bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
JOANNA REESE, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114

DESCRIPTION OF WORK

The only contractors allowed to bid on this project will be contractors short-listed by the selection committee.

Project Description: Construct and complete East Canyon State Park, Facility Improvements - Phase III in accordance with contract provisions, specifications, and drawings. The majority of the work includes excavation, paving and concrete work.

Individual contractors or alliances between two or more contractors are allowed in this process to form a team. However, one contractor or firm MUST be declared as the lead firm representing the team. If the team is short-listed through this multi-step process, the state will only enter into contracts with the lead contractor or firm. The lead contractor or firm must be licensed by the State of Utah and comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

MULTI-STEP BIDDING PROCESS
SHORT-LISTING OF GENERAL CONTRACTORS

The short-listing of contractors will be based on the selection criteria outlined in this document.

1. Multi-Step Bidding Documents

The Multi-Step bidding documents consist of all of the information contained in this solicitation and all documents listed in the Table of Contents. All said documents are incorporated in this document by reference.

2. Availability of Documents

Bidding documents are available free of charge at the locations stated on the Schedule. The bidding documents are also available at DFCM's internet web site at http://dfcm.utah.gov.

3. Drawings and Specifications and Interpretations

Drawings, specifications and other contract documents may be obtained as stated in the Notice to Contractors. If any firm is in doubt as to the meaning or interpretation of any part of the drawings, specifications, scope of work or contract documents, they shall submit, in writing, a request for interpretation to the authorized DFCM representative by the deadline identified in the schedule. Answers to questions and interpretations will be made via addenda issued by DFCM. Neither DFCM nor the designer shall be responsible for incorrect information obtained by contractors from sources other than the official drawings/specifications and addenda issued by DFCM.

4. Contact Information

Except as authorized by the DFCM Representative or as otherwise stated in the bidding documents or the pre-submittal meeting, communication during the multi-step bidding process shall be directed to the specified DFCM's Representative. In order to maintain the fair and equitable treatment of everyone, contractors shall not unduly contact or offer gifts or gratuities to owners, users or selection committee members in an effort to influence the selection process or in a manner that gives the appearance of influencing the selection process. This prohibition applies before the bidding documents are issued as the project is developed, and extends through the award of a contract. Failure to comply with this requirement may result in a disqualification from the multi-step bidding process. Contractors should be aware that selection committee members will be required to certify that they have not been contacted by any of the contractors in an attempt to influence the selection process.

5. Requests for Information

All requests for information shall be in writing and directed to:

Project Manager Darrell Hunting
Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114
E-mail: dhunting@utah.gov
Phone: (801) 244-7647
Facsimile: (801) 538-3267

6. Schedule

The Schedule lists the important events, dates, times and locations of meetings and submittals that must be met by the contractor.

7. Pre-Submittal Meeting

A **mandatory** pre-submittal meeting will be held on the date and time and at the location listed on the Schedule. During the meeting, questions will be answered about the multi-step bidding process. Questions about the project, plans and specifications will also be addressed. Attendance at this meeting is mandatory for General Contractors.

8. Submittal Due Dates and Times

All required submittals must be delivered to, and received by, the Division of Facilities Construction and Management by the time deadline established in the Schedule. Submittals received after the specified time deadline will not be accepted. Please allow adequate time for delivery. If using a courier service, the contractor is responsible for ensuring that delivery will be made directly to the required location prior to the deadline.

9. Last Day to Submit Questions

Questions must be submitted in writing to the DFCM project manager by the deadline listed on the Schedule.

10. Addendum

All clarifications will be in writing and issued as addenda to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. **Contractors are responsible for obtaining information contained in the addenda from the web site. Any addenda issued prior to the submittal deadline shall become part of the multi-step bidding process and any information required must be included in the contractor's submittal.** Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding. DFCM shall not be responsible for incorrect information obtained by contractors from sources other than official addenda issued by DFCM.

11. Bid Bond Requirements

Short-listed contractors will be required to submit a bid bond in the amount of five percent (5%) of the bid amount made payable to the Division of Facilities Construction and Management on all bids. **The bid bond must be on the "Bid Bond Form" provided in this RFS (procurement documents) in order to be considered an acceptable bid.** If the bid bond security is submitted on a form other than DFCM's required "Bid Bond Form" and the bid security meets all other legal requirements, the contractor will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security.

12. Performance and References

DFCM will rate each firm's performance on every project worked on (rating scale: 1 = low; 5 = high). The rating may include comments from agencies. The firm will have an opportunity to review and comment on their ratings. Ratings on DFCM projects over the previous five years will be provided to the selection committee for their consideration in evaluating and scoring the past performance of each firm. If a firm has not completed at least three DFCM projects in the last five years, they shall provide by the time indicated on the Schedule, a list of references on additional projects for a total of five projects. References should include: (a) name and address of the project; (b) name and phone number of the person able to answer questions about the project; (c) date of when the work was completed; (d) the cost of the project and the type of project (school, office, warehouse, etc).

13. Statement of Qualifications

The Contractor (firm) shall provide five copies of a statement of qualifications by the time indicated on the Schedule. The statement should describe: (a) the financial viability of your firm; (b) the experience, skill level and qualifications of your firm - identify the specific project manager and site superintendent that will be assigned to this project; (c) provide examples of similar projects completed by your firm and the specific project manager and site superintendent that will be assigned to this project; (d) describe your firm's areas of expertise and other special qualifications as they pertain to this project; (e) document your firm's track record of completing projects on time and within budget; (f) explain your firm's reputation and commitment to high-quality workmanship; and (g) document your firm's ability to comply with the bonding requirements outlined earlier in this document. The statement of qualifications should be concise **(limit three pages)** yet contain sufficient information for evaluation by the selection committee. Note: If multiple firms combine to form a team, only the lead contractor or firm will be allowed to bid on projects. In addition, if any member of the team (contractor or firm) withdraws from the team, the entire team is disqualified and will not be allowed to bid.

14. Termination or Debarment Certification

Each firm must submit a certification that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from soliciting work by any governmental department or agency. The firm must also certify that neither the firm nor its principals have been terminated during the performance of a contract or withdrew from a contract to avoid termination. If the firm cannot certify to these statements, the firm shall submit a written explanation. Firms are to submit the certifications with their Statement of Qualifications.

15. Project Management Plan

Each Contractor (firm) shall provide five copies of a document describing their management plan by the time indicated on the Schedule. The document should include: (a) the process used for selecting and managing subcontractors; (b) a description of how the your firm is organized - pertaining to this project, document who will be in charge with decision making authority; (c) a project schedule detailing your firm's plan to ensure that the project will be completed on time (include timeline for ordering long lead materials and equipment); (d) a description of the process (action plan) your firm will take to bring the project back on schedule if it falls behind; (e) the procedures your firm has in place to minimize change orders; (f) the methodology used to ensure the accuracy of your bid; (g) your firm's approach to site security and project safety; (h) your firm's understanding of DFCM's construction general conditions and contract requirements; and (i) any other information that will assist the selection committee in evaluating your firm's approach to project management.

Include an organization chart of key personnel and a description of their duties. The management plan document should be concise **(limit three pages)** yet contain sufficient information for evaluation by the selection committee. The organization chart is a separate document and is not counted as one of the three pages.

16. Selection Committee

The selection committee will evaluate and score each firm/team. Committee members may include individuals from DFCM, User Agency/Institution, and a representative from the design or construction disciplines.

17. Interviews.

If interviews are required, firms will be notified of the date and time of their interview. Otherwise, the selection committee reserves the right to short-list firms/teams based on their submitted past performance ratings/references, statement of qualifications and project management plan.

If necessary, interviews will be conducted with all responsive and responsible contractors. Firms that are late or do not appear for the interview may be disqualified by the committee. The evaluation will be made using the selection criteria contained in this document. Information provided by the past performance/references, statement of qualifications, project management plan and the interview will be evaluated using the selection criteria as the basis for the selection. The purpose of the interview is to allow contractors an opportunity to present their qualifications, discuss past performance/references and describe their project management plan. It will also provide an opportunity for the selection committee to ask questions about these items. Firms may elect to have management personnel, project managers and superintendents in attendance. Attendance of subcontractors is at the discretion of the contractor. The method of presentation is at the discretion of the contractor.

18. Selection Criteria

The following criteria and weighting will be used in evaluating each firm/team. The selection committee will consider all criteria in performing a comprehensive evaluation of each firm/team. Each firm/team will be scored by each selection committee member in the categories listed below.

A. Performance Rating/References. The committee will receive a past performance rating and/or reference score for each firm/team. DFCM will compute the score for each firm/team based upon the information outlined earlier in this document. **Possible Points: 35**

B. Statement of Qualifications. The committee will evaluate and score each firm's/team's qualifications in accordance with the information outlined earlier in this document as well as additional information about the firm's/team's qualifications presented during the interview. **Possible Points: 35**

C. Project Management Plan. The committee will evaluate and score each firm's/team's project management approach in accordance with the information outlined earlier in this document as well as additional information about the firm's/team's project management approach presented during the interview. **Possible Points: 30**

TOTAL POINTS = 100 POINTS

19. Short-Listing

DFCM will **short-list up to four firms** receiving the highest score above the minimum score of 85 points from the selection committee. No firms receiving fewer than 85 points will be short-listed. Only short-listed firms will be invited to bid on this project. During the bidding process, the final contractor selection will be based on the lowest responsive and responsible bidder.

20. Product Approvals

Where reference is made to one or more proprietary products in the contract documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the contract documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Designer. Such written approval must occur prior to the deadline established for the last scheduled addendum to be issued. The Designer's written approval will be included as part of the addendum issued by DFCM. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the Designer.

21. Trade Secrets or Confidential Matters

Any submitter may designate those portions of the submittals which contain trade secrets or other confidential matters that the Governmental Records and Access Management Act (GRAMA) would allow to be a protected record. Any disclosure of submittals or portions thereof shall be in accordance with GRAMA and State law.

22. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor. Failure to respond may result in the Contractor (firm) receiving a poor performance rating on this project.

23. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

24. Permits

In concurrence with the requirements for permitting in the General Conditions, it is the responsibility of the Contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the Contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

25. Time is of the Essence

Time is of the essence in regard to all the requirements of the contract documents.

26. Bids

Before submitting a bid, each bidder shall carefully examine the contract documents; shall visit the site of the work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the contract documents including those added via addenda. If the bidder observes that portions of the contract documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Project Manager. Changes necessary to correct these issues will be made via addenda issued by DFCM.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Notice to Contractor's prior to the published deadline for the submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.

If the bid bond security is submitted on a form other than the Owner's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **A cashier's check cannot be used as a substitute for a bid bond.**

27. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractors List Form", included as part of the contract documents. The Subcontractors List shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the contract documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements may receive a poor performance rating on this project.

28. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The contract time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

29. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of DFCM to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

30. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

31. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

MULTI-STEP PROJECT SCHEDULE

PROJECT NAME: **East Canyon State Park – Recreation Rehabilitation - Phase III**
DFCM PROJECT NO. : **04015510**

Event	Day	Date	Time	Place
Document Available, including Plans and Specifications	Tuesday	January 13, 2009	10:00 AM	DFCM 4110 State Office Building SLC, UT and DFCM web site*
Mandatory Pre-Submittal Meeting	Tuesday	January 20, 2009	1:30 PM	DNR Building 1594 W. North Temple Salt Lake City, Utah Room # 1010
Last Day to Submit Questions on Shortlisting (In Writing)	Thursday	January 22, 2009	4:00 PM	*Darrell Hunting* - DFCM E-mail: dhunting@utah.gov Fax (801) 538-3267
Addendum on Shortlisting	Monday	January 26, 2009	2:00 PM	DFCM web site*
List of References, Statement of Qualifications, Project Management Plan, and Termination/Debarment Certification Due	Thursday	January 29, 2008	12:00 NOON	DFCM 4110 State Office Building SLC, UT
Interviews by Selection Committee (if necessary)	Tuesday	February 3, 2009	To Be Announced	DNR Building 1594 W. North Temple Salt Lake City, Utah Room # 1010
Short-List Announced	ASAP			
Notice: Only Short-Listed Firms Will Be Allowed To Bid On This Project				
Mandatory Site Meeting	Thursday	February 5, 2009	2:00 PM	East Canyon State Park – Entrance Station 5535 So. Highway 66 Morgan, Utah 84050
Last Day to Submit Questions (In Writing)	Monday	February 9, 2009	1:00 PM	*Darrell Hunting* - DFCM E-mail: dhunting@utah.gov Fax (801) 538-3267
Final Addendum (exception for bid delays)	Thursday	February 12, 2009	2:00 PM	DFCM web site*
Prime Contractors Turn in Bid and Bid Bond/Bid Opening in DFCM Conference Room	Tuesday	February 17, 2009	3:30 PM	DFCM 4110 State Office Building SLC, UT
Subcontractors List Due	Wednesday	February 18, 2009	3:30 PM	DFCM 4110 State Office Building SLC, UT Fax (801)-538-3677
Project Completion Date	Friday	October 30, 2009	4:00 PM	On Site

*** DFCM's web site address is http://dfcm.utah.gov**

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **East Canyon State Park Recreation Rehabilitation Phase III – Division of Parks & Recreation – Morgan, Utah - DFCM PROJECT # 04015510** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

Base Bid:

_____ DOLLARS ($_____)

(In case of discrepancy, written amount shall govern)

Additive Alternate #1 – Rivers Edge.

_____ DOLLARS ($_____)

(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by Friday, October 30, 2009, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **$500.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in the Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract.

The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable l00% Performance and Payment bonds are not delivered within the time set forth.

Type of Organization:

_____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

_____

Respectfully submitted,

_____
Name of Bidder

ADDRESS:

_____

_____

_____
Authorized Signature

BID BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of $_____(5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____ .

Principal's name and address (if other than a corporation):

_____

By:_____

Title: _____

Principal's name and address (if a corporation):

_____

By _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

_____

_____

By:_____
Attorney-in-Fact (Affix Corporate Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this ____ day of _____, 20_____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My Commission Expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, based on the following:

DOLLAR AMOUNTS FOR LISTING

PROJECTS UNDER $500,000: ALL FIRST-TIER SUBS $20,000 OR OVER MUST BE LISTED
PROJECTS $500,000 OR MORE: ALL FIRST-TIER SUBS $35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- If there are no subcontractors for the job that are required to be reported by State law (either because there are no subcontractors that will be used on the project or because there are no first-tier subcontractors over the dollar amounts referred to above), then you do not need to submit a sublist. If you do not submit a sublist, it will be deemed to be a representation by you that there are no subcontractors on the job that are required to be reported under State law. At any time, DFCM reserves the right to inquire, for security purposes, as to the identification of the subcontractors at any tier that will be on the worksite.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A.Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUNDS FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for

such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

(1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
(2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
(3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
(4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
(5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
(6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONTRACTOR LICENSE #
ELECTRICAL	ABCD Electric Inc.	$350,000.00	123456789000
LANDSCAPING	"Self" *	$300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	$298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: $350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

* Bidders may list "self", but it is not required.

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.

SUBCONTRACTORS LIST

FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____ SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR OWNER'S REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY OWNER. ATTACH A SECOND PAGE IF NECESSARY.

CONTRACTOR'S AGREEMENT

FOR:

_____
_____
_____

THIS CONTRACTOR'S AGREEMENT, made and entered into this __ day of _____, 2006, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of Utah and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____Utah _____.

WITNESSETH: WHEREAS, DFCM intends to have _____ Work performed at _____
_____

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 and Supplemental General Conditions dated July 15, 2008 (also referred to as "General Condition"), on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____**DOLLARS AND NO CENTS ($_____)**, which is the base bid, and includes the cost of a 100%

Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____ after the date of the Notice to Proceed. Contractor agrees to pay liquidated damages in the amount of _____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the

Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR:

_____
Signature Date

Title: _____

State of _____)
)
County of _____) _____
Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

_____
Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO AVAILABILITY OF FUNDS:

_____
David D. Williams, Jr. Date
DFCM Administrative Services Director

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

_____
Lynn A. Hinrichs Date
Assistant Director Construction Management

APPROVED AS TO FORM:
ATTORNEY GENERAL
July 15, 2008
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

_____
Division of Finance Date

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee, " in the amount of _____ DOLLARS ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars ($_____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____
Attorney-in-Fact

(Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20___, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah inreference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My commission expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____ _____, a corporation organized and existing under the laws of the State of _____authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ _____ Dollars ($_____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, l953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

_____

(Seal)

PRINCIPAL:

_____

By: _____

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____
Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20_____, personally appeared before me _____ _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My commission expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone:

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

RECLAMATION

Managing Water in the West

East Canyon State Park Recreation Rehabilitation – Phase III

Weber Basin Project, Utah

U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

SPECIFICATIONS

July 14, 2008

TABLE OF CONTENTS

DIVISION 5 – METALS: (Not Used)

DIVISION 6 - WOOD AND PLASTICS: (Not Used)

DIVISION 7 - THERMAL AND MOISTURE PROTECTION: (Not Used)

DIVISION 8 - DOORS AND WINDOWS: (Not Used)

DIVISION 9 - FINISHES: (Not Used)

DIVISION 10 – SPECIALTIES: (Not Used)

DIVISION 11 – EQUIPMENT: (Not Used)

DIVISION 12 – FURNISHINGS: (Not Used)

DIVISION 13 - SPECIAL CONSTRUCTION

DIVISION 14 - CONVEYING SYSTEMS: (Not Used)

DIVISION 15 – MECHANICAL: (Not Used)

DIVISION 16 – ELECTRICAL

END OF CONTENTS

SECTION 01110 - SUMMARY OF WORK

PART 1 GENERAL

1.01 REQUIREMENT

A. Construct and complete East Canyon State Park, Facility Improvements - Phase III in accordance with contract provisions, these specifications, and drawings.

1.02 LOCATION

A. The work is situated at East Canyon State Park in Morgan County about 18 miles northeast of Salt Lake City, Utah.

1.03 DEFINITIONS

A. Furnish: To supply products to the project site, including delivering ready for unloading and replacing damaged and rejected products.

B. Install: To put products in place in the work ready for the intended use, including unloading, unpacking, handling, storing, assembling, installing, erecting, placing, applying, anchoring, working, finishing, curing, protecting, cleaning, and similar operations.

C. Provide: To furnish and install products.

D. Indicated: Shown, noted, scheduled, specified, or drawn, somewhere in the contract documents.

E. Demonstrate: To show product performance or compliance in the presence of the Government Inspector.

F. Government: When the term Government is used in the technical specifications (Divisions 1 through 16) it shall be construed to mean the land owner which is the United States Government and land manager which is the State of Utah or State Parks. Also the term Government shall be construed to mean Consultant (The United States Bureau of Reclamation who has furnished the drawings and technical specification and is providing construction oversight and inspection) when the word Consultant can be substituted without changing the meaning of the phrase.

1.04 PRINCIPAL COMPONENTS OF THE WORK

A. Division 01 - GENERAL REQUIREMENTS

1. Specific administrative requirements, procedural requirements, temporary facilities, and controls which apply to the execution of the work of all sections of the specifications.

B. Division 02 - SITEWORK

1. Demolition.
2. Grading.
3. Bituminous pavement.

C. Division 03 - CONCRETE

1. Placing and finishing concrete pads, footings and sidewalks.

D. Division 04 – MASONRY (Not Used)

E. Division 05 – METAL (Not Used)

F. Division 06 - WOOD AND PLASTICS (Not Used)

G. Division 07 - THERMAL AND MOISTURE PROTECTION (Not Used)

H. Division 08 - DOORS AND WINDOWS (Not Used)

I. Division 09 – FINISHES (Not Used)

J. Division 10 – SPECIALTIES (Not Used)

K. Division 11 – EQUIPMENT (Not Used)

L. Division 12 – FURNISHINGS (Not Used)

M. Division 13 - SPECIAL CONSTRUCTION

1. Photovoltaic cells to power the campground gates.
2. Photovoltaic cells to power the gate house.

N. Division 14 - CONVEYING SYSTEMS (Not Used)

O. Division 15 – MECHANICAL (Not Used)

P. Division 16 - ELECTRICAL

1. Installation of solar based electrical system and equipment.

1.05 RESERVOIR LEVELS

A. The reservoir is typically low in autumn and may peak at elevation 5708 in late spring or early summer.

1. Work on items that are hampered by high reservoir levels shall take place while the reservoir is low.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01111 - DRAWINGS

PART 1 GENERAL

1.01 QUALITY ASSURANCE

A. Inform the Government of any discrepancies, errors, or omissions discovered on drawings.

1.02 PROJECT CONDITIONS

A. Where there are minor differences as determined by the Government between details and dimensions shown on drawings and details and dimensions of existing features at jobsite, use details and dimensions of existing features at jobsite.

1.03 INFORMATIONAL DRAWINGS

A. Some drawings are marked "for information only" in the drawing list and are included to show some feature about which additional knowledge is required for bidding.

B. If there are differences as determined by the Government between details and dimensions shown on these drawings and those of existing features at jobsite, use details and dimensions of existing features at jobsite.

1.04 ADDITIONAL OR REVISED DRAWINGS

A. Except as provided in these specifications for drawings to be furnished by Contractor, specifications drawings will be supplemented by additional or revised general and detail drawings as necessary or desirable as work progresses.

B. Do not perform work without proper drawings and instructions.

1.05 COPIES OF DRAWINGS

A. Two sets of full-size drawings, except standard drawings, will be furnished to the Contractor for construction purposes.

B. Additional half-size copies of standard drawings will be furnished upon request to the Contractor for construction purposes.

1.06 LIST OF DRAWINGS

A. The drawings listed on Sheet 1 drawing number 526-418-766 are made a part of these specifications.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01131 - PROTECTED SPECIES

PART 1 GENERAL

1.01 PROJECT CONDITIONS

A. Certain native species in the State of Utah are protected plant or animal species under State law(s). The Government has ascertained that the American Peregrine Falcon, the Bald Eagle, the Ferruginous Hawk, and the Canada Lynx are protected species which may exist in the areas to be disturbed by construction activities.

B. Insert this section in subcontracts which involve performance of work in areas where protected species may occur.

C. In accordance with State law, the Government may arrange for removal of protected species, and the Contractor shall cooperate with those performing such removal. If these species are not removed, cooperate with and abide by protection plans developed by appropriate State entities to avoid damage to or disturbance of protected species.

D. The Contractor should also take care not to disturb the habitat of the Osprey or Sage Grouse which are species of special concern to the State of Utah.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01135 - PRESERVATION OF HISTORICAL AND ARCHAEOLOGICAL DATA

PART 1 GENERAL

1.01 DEFINITIONS

A. Cultural resources: Includes prehistoric, historic, architectural, and traditional cultural properties. These include, but are not limited to, human skeletal remains, archaeological artifacts, records, and material remains related to such property.

B. Cultural items: Native American cultural items (i.e., funerary objects, sacred objects, objects of cultural patrimony, or human remains) for which protection is prescribed under the Native American Graves Protection and Repatriation Act (NAGPRA) - Public Law 101-601; 104 Stat. 3042, Section 3(d); and 43 CFR Part 10.4.

C. Human remains: Physical remains of the body of a person.

D. Funerary objects: Native American items that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed intentionally at the time of death or later with or near individual human remains.

E. Native American: Of, or relating to, a tribe, people, or culture that is indigenous to the United States.

F. Sacred Objects: Native American items that are specific ceremonial objects needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present-day adherents. These items are specifically limited to objects that were devoted to a traditional Native American religious ceremony or ritual and which have religious significance or function in the continued observance or renewal of such ceremony.

G. Objects of cultural patrimony: Native American items having ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than property owned by an individual tribal member. These objects are of such central importance that they may not be alienated, appropriated, or conveyed by any individual tribal member.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01135-1, Borrow areas:

1. Submit map showing location of use or borrow areas, for approval.

1.03 PROJECT CONDITIONS

A. Federal legislation provides for protection, preservation, and collection of scientific, prehistorical, historical, and archeological data, including relics and specimens, which might otherwise be lost due to alteration of terrain as a result of any Federal construction project.

B. Any person who, without permission, injures, destroys, excavates, appropriates, or removes any historical or prehistorical artifact, object of antiquity, or archeological resource on public lands of the United States is subject to arrest and penalty of law.

C. Comply with state laws when operating on non-Federal and non-Indian lands.

D. Discovery of Resources

1. When the Contractor, or any of the Contractor's employees, or parties operating or associated with the Contractor, in performance of this contract discover cultural resources on any lands (surface or subsurface):

   a. Immediately cease work at that location.

   b. Immediately notify the Provo Area Office Archeologist orally, giving the location and nature of the findings.

   c. Follow with written confirmation to the Provo Area Office Archeologist within 2 days.

2. In addition to notifying the Provo Area Office Archeologist; where the discovery occurs on state, municipal, or private lands, notify the appropriate state officials as prescribed by state law.

3. Exercise care so as not to disturb or damage cultural resources uncovered during construction activities and provide such cooperation and assistance as may be necessary to protect and preserve the findings for removal or other disposition by the Provo Area Office Archeologist, any applicable Indian tribal officials, and the Utah State Historic Preservation Office.

4. Do not resume work in the area of discovery until receipt of written notice to proceed from the Provo Area Office.

E. Where appropriate by reason of discovery, the Government Inspector may order delays in time of performance or changes in work, or both. When such delays or changes are ordered, an equitable adjustment will be made in the contract in accordance with applicable clauses of the contract.

1. Submit a map showing the location of proposed sites to the Government at least 45 days in advance of use.

2. Take no action to use or alter the proposed location until written approval for site use is received from the Government.

F. Include permission for Government access in arrangements for use of private lands for use areas or borrow sources. Government access to the private land shall be to identify cultural resources and conduct appropriate inspections.

G. Insert this Section in subcontracts which involve performance of work on jobsite terrain.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01141 - USE OF SITE

PART 1 GENERAL

1.01 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01141-1, Land use and landscape rehabilitation plan:

1. For each Contractor use site on Government land.

a. Show use location and extent of impact. Uses include but are not limited to the following:

1) Buildings and service areas including offices, shops, warehouses, storage areas, fuel and oil storage areas, and fabrication yards.

2) Parking areas, temporary roads, and haul routes.

3) Utilities including air, power, and water lines; fire hydrants; and compressor station.

4) First-aid and medical facilities.

5) Areas for processing, storing, and disposing of waste materials from construction operations.

6) Temporary fences.

b. Describe methods to preserve, protect, and repair if damaged, vegetation (such as trees, shrubs, and grass) and other landscape features on or adjacent to the jobsite, which are not to be removed and which do not interfere with the work required under this contract. Include methods to mark work area limits, protect disturbed areas, and prevent erosion.

c. Describe methods to protect, and repair if damaged, existing improvements and utilities at or near the jobsite.

d. Describe methods for removing temporary structures and facilities, cleanup, and rehabilitating site after completion of construction activities.

2. Submit revised drawings of changes in use of Government land made during design and erection stages or after use of Government land is in operation.

1.02 PROJECT CONDITIONS

A. Government land as shown on drawings may be used for required construction facilities.

B. When private land is used for construction facilities, or other construction purposes, make necessary arrangements associated with use of private land.

C. Location, construction, operation, maintenance, and removal of construction facilities on Government land will be subject to approval of the Government Inspector.

D. Do not interfere with work of other contractors or the Government in vicinity, or with reservations made by the Government for use of such land.

E. Housing for construction personnel will not be permitted on Government land, except housing for guards or watchmen as may be approved by the Government.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 CLEANING

A. Construction equipment: Pressure wash to remove dirt and vegetation before bringing on site to limit introduction of noxious weeds.

3.02 RESTORATION

A. Restore temporary construction roads to original contours and make impassable to vehicular traffic when no longer required.

B. Scarify and regrade, after completion of work, Government land used for construction purposes and not required for completed installation so that surfaces blend with natural terrain and are in a condition that will facilitate natural revegetation, provide proper drainage, and prevent erosion.

C. Seed disturbed areas of Government land used for construction purposes and not required for completed installation, as recommended by an experienced local horticulturist, with the same species of native plants, or other approved perennial species.

END OF SECTION

SECTION 01330 - SUBMITTALS

PART 1 GENERAL

1.01 DEFINITIONS

A. Days: Calendar days.

B. Required Submittal Number (RSN): RSN identifies items to be submitted together as a complete submittal.

C. Submittal Types, as listed in Table 01330A – List of Submittals:

1. A – Approval:
    a. Government approval is required.
    b. Approval submittals are considered to be “shop drawings.”
2. I – Informational:
    a. Government approval is not required.
    b. Informational submittals are not considered to be “shop drawings.”
    c. The Government may return an Informational submittal or ask for additional information when an Informational submittal does not comply with the specifications.

1.02 SUBMITTAL REQUIREMENTS

A. In case of conflict between requirements of this section and requirements included elsewhere in these specifications, requirements included elsewhere take precedence.

B. General:

1. Prepare in English.
2. Label with contract number and title, and RSN.
3. Measurement units: US Customary Units.

C. Drawings:

1. Minimum identification in title block:
    a. Contract number and title.
    b. Contractor's or supplier's title and drawing number.
    c. Date.
2. Allow space for review stamps.
3. Size: D size (22 inches by 34 inches) or smaller.

4. Draw to scale with neat lettering using drafting equipment or computer drafting equipment.
5. Final drawings:
    a. AUTOCAD® format (.dwg) or Drawing Transfer Format (.dxf) on CD-ROM disc.
    b. Original D size (22 inches by 34 inches) plots.
    c. Show as-built changes, including revision dates, made during installation.

D. Product Data:
1. Mark manufacturer's data for commercial products or equipment, such as catalog cut sheets.
    a. Identify manufacturer's name, type, model, size, and characteristics.
    b. Illustrate that product or equipment meets requirements of specifications.
    c. Mark items to be furnished in a manner that will photocopy (no highlighter).
    d. Strike out items that do not apply.

E. Certifications:
1. Submittals requiring certification by a registered professional: Signed and sealed by registered professional.
2. Manufacturer’s certifications: Signed by authorized representative of manufacturer.

F. Samples and Color Selection Submittals:
1. Label with complete manufacturer's product and color identification.
2. Include type and quantity of materials specified in the referenced section in each "set" of samples.
3. Samples: Representative of product to be installed.
4. Color chips: Sample paint chips. Ink color reproductions are not acceptable.
5. Label each sample, sample kit, set of color chips, or color chart with contract number and title.
6. The Government will select architectural color and pattern after product approval.

1.03 SUBMITTALS PROCEDURES

A. Submit only checked submittals. Submittals without evidence of Contractor's approval will be returned for resubmission.

B. Submit complete sets of required materials for each RSN as specified in "Submittals Required" column in Table 01330A - List of Submittals. A complete set includes all listed items for RSNs with multiple parts.

C. Submit number of sets specified in "No. of sets to be sent to:" columns in Table 01330A - List of Submittals.

D. Include the following information in transmittal letters:

1. Contract number and title.
2. RSN for each attached submittal.
3. Responsible code.
4. Number of sets for each RSN.
5. Identify submittal as initial or resubmittal.

E. More than one RSN may be submitted under a transmittal letter, provided the responsible code is the same.

1.04 REVIEW OF SUBMITTALS

A. Time Required:

1. Submittal review will require 14 days for review of each submittal or resubmittal, unless otherwise specified.
2. Time required for review of each submittal or resubmittal begins when complete sets of materials required for a particular RSN are received and extends through return mailing postmark date.

B. Time in Excess of Specified:

1. The Government may extend the contract completion date to allow additional time for completing work affected by excess review time.
    a. The time extension will be to the extent that excess review time caused delay to the contract completion date.
    b. The time extension will not exceed the time used in excess of the specified number of days for review of submittals or resubmittals.
    c. Concurrent days of excess review time resulting from review of two or more separate submittals or resubmittals will be counted only once in extending the contract completion date.
2. No time extension will be allowed if the Contractor fails to make complete approval submittals in sequence and within time periods specified.
3. Adjustment for delay will be made only to the extent that:
    a. Approval was required under the contract, and

b. Requests for approval were properly and timely submitted and were approved.

C. Return of Submittals:

1. One set of submittals required for approval will be returned either approved, approved subject to identified changes, or not approved.

2. Submittals not approved:

a. Revise and resubmit for approval.

b. Show changes and revisions with revision date.

c. Describe reasons for significant changes in transmittal letter.

d. Resubmit returned submittals within 14 days after receiving the comments, unless otherwise specified.

e. Requirements for initial submittals apply to resubmittals.

3. Do not change designs without approval of the Government after approval drawings, documentation, and technical data have been approved.

4. The Government will acknowledge Informational submittals.

a. Informational submittals will not be returned when they comply with the specifications.

b. Informational submittals that do not comply with the specifications may be returned for resubmittal or additional information may be requested.

1.05 TRANSMITTAL

A. Addresses for codes listed in Table 01330A - List of Submittals:

1. Area Manager, Bureau of Reclamation, Provo Area Office, 302 East 1860 South, Provo, UT 84606-7317.

2. Mr. Pete Wilson, Utah Department of Natural Resources, 1594 West North Temple, Suite 116, P.O. Box 146001, Salt Lake City, UT 84114-6001.

B. Send original transmittal letter with appropriate number of sets to office listed in "Responsible Code" column in Table 01330A – List of Submittals.

C. Send copy of transmittal letter with appropriate number of sets to offices that are not the responsible code, but show "No. of sets to be sent to" in Table 01330A – List of Submittals.

D. When "No. of sets to be sent to" is 0, send a copy of transmittal letter to that office.

E. Submittals required by the specifications, but not listed in Table 01330A - List of Submittals:

1. Submit in accordance with this section.

2. Submit to Area Manager, Bureau of Reclamation, Provo Area Office, 302 East 1860 South, Provo, UT 84606-7317, unless otherwise specified.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

Table 01330A. - List of Submittals

* Submittal types: A – Approval, I – Information

** AM indicates Area Manager, NR indicates Utah Department of Natural Resources (State Parks).

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	Respon-sible code	No. of sets to be sent to: **		
						AM	NR	
GC1	General Conditions (3.7.2, 3.7.9, & 3.7.11))	CPM schedule for the Work and submittal schedule. Mark submittal items requiring expedited review.	Promptly after award and a revised schedule with each pay request	A	AM	3	1	
GC2	General Conditions (8.1 & 8.2)	Schedule of values with bid items	Before the first application for payment and with each pay request.	A	AM	3	1	
GC3	General Conditions (8.8.2)	All seven items listed in the General Conditions for final payment	With request for final payment	A	AM	3	1	
01135-1	Preservation of Historical and Archeological Data	Map, showing location of proposed use or borrow areas	3 days after award of any subcontract requiring borrow	A	AM	3	1	
01141-1	Contractor use of site	Land use and Landscape rehabilitation plan	At least 20 days prior to use of Government land	A	AM	3	1	
01335-1	Material safety data sheets for hazardous materials	Updated List of Hazardous Materials and Material safety data sheets	At least 14 days before hazardous materials are delivered to jobsite	I	AM	3	1	
01527-1	Safety and Health	Safety program	Submitted and accepted before commencing onsite work. See Section 3 of "Reclamation Safety and Health Standards." (2001) Edition	A	AM	3	1	
01527-2	Safety and Health	Monthly accident summary report	Within 5 days at the end of each month	A	AM	3	1	
01555-1	Traffic Control	Traffic control plan	Before starting work which requires traffic control	A	AM	3	1	
01562-1	Environmental Controls	Copy of Air Quality Permit	Before starting work	I	AM	3	1	
01563-1	Water pollution control	Pollution prevention plan(s) as required by stormwater permit(s)	At least 7 days prior to the start of onsite construction work	A	AM	3	1	

Table 01330A. - List of Submittals

* Submittal types: A – Approval, I – Information

** AM indicates Area Manager, NR indicates Utah Department of Natural Resources (State Parks).

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	Respon-sible code	No. of sets to be sent to: **		
						AM	NR	
01563-2	Water pollution control	SPPC plan and certified statement regarding review and certification of the SPCC plan by a registered professional engineer	At least 7 days prior to the delivery or storage of oil	A	AM	3	1	
01569-1	Tree and Plant Protection	Protection Plan	7 days before demolition and clearing operations	A	AM	3	1	
01740-1	Construction cleaning	Waste production and disposal records.	Upon disposal of common waste	I	AM	3	1	
01740-2	Construction cleaning	Hazardous waste manifest	Upon disposal of hazardous waste	I	AM	3	1	
01781-1	Project Record Documents	As-Built Drawings	15 days after construction	I	AM	2	0	
02220-1	Demolition	Photographs	Before starting work	I	AM	3	1	
02316-1	Imported Earth Materials	Material certificates and job mix gradation	At least 10 working days before placement	A	AM	3	1	
02371-1	Geotextile	Certification and samples	At least 14 working days before installation	A	AM	3	1	
02375-1	Riprap	Source of stone, laboratory analysis	At least 10 working days before placement	A	AM	3	1	
02742-1	Bituminous Surfacing	Mix Design Data	At least 7 days prior to placement	A	AM	3	1	
02742-2	Bituminous Surfacing	Certifications	Prior to placement	A	AM	3	1	
02763-1	Painted Traffic Lines and Markings	Paint Certification	At least 7 days prior to use	A	AM	3	1	
02763-2	Traffic Paint	Instructions	At least 7 days prior to use	I	AM	3	1	
02822-1	Chain Link Fence	Certifications and Samples	Before purchase	A	AM	3	1	
02871-1	Grills and Firerings	Manufacturer’s data	Before purchase	A	AM	3	1	
02872-1	Outdoor Tables	Manufacturer’s data	Before purchase	A	AM	3	1	

Table 01330A. - List of Submittals

* Submittal types: A – Approval, I – Information

** AM indicates Area Manager, NR indicates Utah Department of Natural Resources (State Parks).

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	Respon-sible code	No. of sets to be sent to: **		
						AM	NR	
03300-1	Cast-in-Place Concrete	Name and manufacturer of each cementitious material, admixture, curing compound, and aggregate source	At least 7 days prior to placement of concrete	A	AM	3	1	
03300-2	Cast-in-Place Concrete	Mix Design	At least 7 days prior to the use of the concrete mix	A	AM	3	1	
13641-1	Solar Powered Gate Operators	Product Data, including installation instructions	Before Purchase	A	AM	3	1	
13650-1	Photovoltaic Power System	Photovoltaic power system data	At least 14 days before beginning of system construction	A	AM	3	1	
13650-2	Photovoltaic Power System	Shop drawings	At least 14 days before beginning of system construction	A	AM	3	1	
13650-3	Photovoltaic Power System	Names of licensed electricians	14 days before beginning electrical work	A	AM	3	1	

END OF SECTION

SECTION 01335 - MATERIAL SAFETY DATA SHEETS

PART 1 GENERAL

1.01 DEFINITIONS

A. LHM: List of Hazardous Materials

B. MSDS: Material Safety Data Sheet.

1.02 APPLICATION

A. For the purposes of this contract, the definition of “materials delivered under this contract” in the clause at FAR 52.223-3 “Hazardous Material Identification and Material Safety Data” Alternate 1 includes materials delivered to the Government and all materials expected to be used during contract performance at the jobsite.

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01335-1, Complete LHM and MSDS.

1.04 DELIVERY

A. Do not deliver hazardous materials to jobsite which are not included on the original or previously updated LHM and MSDS before receipt of updated LHM and MSDS by the Government.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01420 - REFERENCES

PART 1 GENERAL

1.01 REFERENCES

A. Referenced editions of standard specifications, codes, and manuals form a part of this specification to the extent referenced.

B. These specifications take precedence when conflicting requirements occur between specifications and referenced standard.

1.02 JOBSITE REFERENCES

A. Maintain at fabrication site, a copy of referenced standard specifications, codes, and manuals required for work in progress at fabrication site. Make available for use by the Government.

B. Maintain onsite, a copy of referenced standard specifications, codes, and manuals required for onsite work in progress. Make available for use by the Government.

1.03 AVAILABILITY

A. Code of Federal Regulation (CFR):

1. Available online, authorized by the National Archives and Records Administration (NARA) and the Government Printing Office (GPO), at www.gpoaccess.gov/cfr/index.html.

B. Federal Specifications, Standards, and Commercial Item Descriptions; and Military Specifications:

1. Copies of Federal Specifications, Standards, and Commercial Item Descriptions may be obtained from GSA Federal Supply Service, see the provision at FAR 52.211-1, "Availability of Specifications Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29."

2. Copies of Military Specifications may be obtained from Department of Defense, see the provision at FAR 52.211-2, “Availability of Specifications, Standards, and Data Item Descriptions Listed in the Acquisition Streamlining and Standardization Information System (ASSIST)”.

C. Bureau of Reclamation Documents:

1. Printed copies of Reclamation Safety and Health Standards (RSHS), stock number 024-003-00190-2, may be purchased from the Superintendent of Documents at the U.S. Government Printing Office, phone number (202) 512-1800. RSHS may be downloaded at http://www.usbr.gov/ssle/safety/RSHS/rshs.html

a. Printed copies of RSHS are dated 2001. Electronic versions of the RSHS are dated 2002. These documents are identical. These specifications use the 2001 date.

2. Bureau of Reclamation Standard Specifications are designated with an M-series number. Copies of these documents may be obtained from Bureau of Reclamation, Attn 86-68170, PO Box 25007, Denver CO 80225-0007.

3. Bureau of Reclamation manuals and other publications including significant scientific, technical, and engineering works are available from the National Technical Information Service (NTIS). Information regarding availability and pricing may be obtained by contacting NTIS at the following address:

United States Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
Telephone: (703)487-4650 or 1-800-553-6847

4. Bureau of Reclamation was officially named Water and Power Resources Service for a short period. References to Water and Power Resources Service or any derivative form are synonymous with Bureau of Reclamation.

D. Industrial and Governmental Documents

1. When a reference has a joint designation (e.g. ANSI/IEEE) these specifications generally cite the proponent organization (e.g. IEEE).

2. Addresses for obtaining industrial and governmental (other than Federal and Bureau of Reclamation specifications and standards) specifications, standards, and codes are listed in table 01420A - Addresses for Specifications, Standards, and Codes.

Table 01420A - Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol St., NW, Suite 249 Washington, DC 20001 www.aashto.org	(202) 624-5800 (800) 231-3475
AGC	Associated General Contractors of America 333 John Carlyle Street, Suite 200 Alexandria VA 22314 www.agc.org	(703) 548-3118

Table 01420A - Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
ANSI	American National Standards Institute 1819 L. Street, N.W. Washington, DC 20036 www.ansi.org	(202) 293-8020
APA/EWA	APA-The Engineered Wood Association P.O. Box 11700 Tacoma, WA 98411-0700 www.apawood.org	(253) 565-6600
ASME	American Society of Mechanical Engineers 3 Park Ave. New York, NY 10016-5990 www.asme.org	(800) 843-2763
ASTM	ASTM International 100 Barr Harbor Dr. West Conshohocken, PA 19428-2959 www.astm.org	(601) 832-9585
AWS	American Welding Society 550 NW LeJeune Rd. Miami, FL 33126 www.amweld.org	(800) 443-9353 (305) 443-9353
CLFMI	Chain Link Fence Manufacturers Institute 9891 Broken Land Pkwy, Suite 300 Columbia, MD 21046 www.chainlinkinfo.org	(301) 596-2583
IEEE	Institute of Electrical and Electronics Engineers 3 Park Ave.,17th Floor New York, NY 10016-5997 www.ieee.org	(212) 419-7900
NACE	NACE International 1440 South Creek Drive Houston, TX 77084 www.nace.org	(281) 228-6200
NEMA	National Electrical Manufacturers Association 1300 N 17th St., Suite 1847 Rosslyn, VA 22209 www.nema.org	(703) 841-3200

Table 01420A - Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 www.nfpa.org	(800) 344-3555 (617) 770-3000
SSPC	SSPC: The Society for Protective Coatings 40 24th St., 6th Floor Pittsburgh, PA 15222-4656 www.sspc.org	(800) 837-8303 (412) 281-2331
UL	Underwriters Laboratories Inc. 333 Pfingsten Rd. Northbrook, IL 60062-2096 www.ul.com	(847) 272-8800

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01510 - TEMPORARY UTILITIES

PART 1 GENERAL

1.01 REFERENCES

A. Institute of Electrical and Electronics Engineers (IEEE)

1. IEEE C2-2002 National Electrical Safety Code (NESC)7

1.02 TEMPORARY ELECTRICITY

A. Provide required electric power for construction.

B. Provide generators, transmission lines, distribution circuits, transformers, and other electrical equipment and facilities required for obtaining power and distributing power to points of use.

C. Comply with IEEE C2 clearances and spacing for temporary communications and supply lines.

D. Remove temporary equipment and facilities upon completion of work under this contract.

1.03 TEMPORARY WATER

A. Provide water required for construction purposes.

B. Water may be obtained from East Canyon Reservoir. No charge will be made for water obtained from this source. Coordinate with the Bureau of Reclamation for water rights.

1. Make arrangements with the Government for use of water.
2. The Government will designate locations from which water may be obtained.
3. No charge will be made for water obtained from this source.

C. Use water which meets specified requirements for water used in concrete, and other permanent work.

D. Provide means of conveying water to points of use.

E. Remove temporary equipment and facilities upon completion of work under this contract.

1.04 TELEPHONE

A. Provide telephone service.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01527 - SAFETY AND HEALTH

PART 1 GENERAL

1.01 REFERENCES

A. Bureau of Reclamation (USBR)

1. USBR RSHS-2001 Reclamation Safety and Health Standards

a. Available on the Internet at:
http://www.usbr.gov/ssle/safety/RSHS/rshs.html.

b. Hard copies available from:

The Government Printing Office
Superintendent of Documents
North Capitol and H St. N. W.
MS-SSMC - Room 566
Washington, D.C. 20401
(202) 512-1800
(Stock item GPO-024-003-00190-2)

c. Printed copies of RSHS are dated 2001. Electronic versions of the RSHS are dated 2002. These documents are identical. These specifications use the 2001 date.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01527-1, Safety program:

1. Written safety program in accordance with Section 3 of USBR RSHS.

C. RSN 01527-2, Monthly accident summary report:

1. Form 7-2218 or other acceptable form in accordance with paragraph 3.8 of USBR RSHS.

1.03 PROJECT CONDITIONS

A. Comply with USBR RSHS.

B. Provide and maintain a work environment and procedures that will:

1. Safeguard the public and Government's personnel exposed to Contractor operations and activities.

2. Avoid interruptions of site operations and delays in project completion dates.

3. Control costs in contract performance.

C. Do not require persons employed in performance of this contract, including subcontracts, to work under conditions which are unsanitary, hazardous, or dangerous to the employee's health or safety.

D. Provide appropriate safety barricades, signs, and signal lights.

E. Maintain accurate record of and report to the government the following occurrences during performance of this contract:

1. Death.
2. Occupational disease.
3. Traumatic injury to employees or the public.
4. Property damage in excess of $2,500.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01555 - TRAFFIC CONTROL

PART 1 GENERAL

1.01 REFERENCES

A. Federal Highway Administration, Department of Transportation

1. MUTCD, Part 6 — Part 6, Temporary Traffic Control, MUTCD 2000, Manual on Uniform Traffic Control Devices, 2003 Edition, with Revision No. 1, July 21, 2004 (http://mutcd.fhwa.dot.gov/)

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01555-1, Traffic control plan.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 TRAFFIC CONTROL

A. Meet requirements of MUTCD, Part 6.

B. Provide cones, delineators, concrete safety barriers, barricades, flasher lights, danger signals, signs, and other temporary traffic control devices as required to protect work and public safety.

C. Provide flaggers and guards as required to prevent accidents and damage or injury to passing traffic.

D. Do not begin work along public or private roads until proper traffic control devices for warning, channeling, and protecting motorists are in place in accordance with approved traffic control plan.

E. Maintain traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic.

F. Provide unobstructed, smooth, and dustless passageway for one lane of traffic through construction operations.

G. Construct temporary connections for one lane of traffic between existing roadway and new construction.

H. Protect roads closed to traffic with effective barricades and warning signs. Illuminate barricades and obstructions from sunset to sunrise.

I. Remove traffic control devices when no longer needed.

END OF SECTION

SECTION 01562 - ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 COST

A. Costs for damages and work stoppage are the Contractor's responsibility.

1.02 REFERENCES

A. Bureau of Reclamation (USBR)

1. USBR RSHS Reclamation Safety and Health Standards, 2001 Edition

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01562-1, Copy of applicable Air Quality Permit:

1. For information.
2. Air Quality Permits are required for certain construction-related activities including, but not limited to, earthmoving, sandblasting, aggregate processing, welding, spray-coating operations, or other processes which discharge pollutants into the open air.
3. Air Quality Permits, and information concerning the requirements, are available by calling (801) 536-4100.

1.04 REGULATORY REQUIREMENTS

A. Comply with Federal, State, and local laws and regulations.

B. Comply with USBR RSHS.

C. Conform to most stringent requirement in cases of conflict between specifications, regulatory requirements, and USBR RSHS.

D. Contractor shall be responsible for damages resulting from dust originating from Contractor operations.

E. The Government may stop any construction activity in violation of Federal, State, or local laws and additional expenses resulting from work stoppage will be responsibility of Contractor.

1.05 DUST CONTROL

A. Provide dust control and abatement during construction.

B. Prevent, control, and abate dust pollution on rights-of-way provided by Government or elsewhere during performance of work.

C. Provide labor, equipment, and materials, and use efficient methods wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities, including, but not limited to, crops, orchards, cultivated fields, wildlife habitats, dwellings and residences, agricultural activities, recreational activities, traffic, and similar conditions.

D. Provide means for eliminating atmospheric discharges of dust during mixing, handling, and storing of cement, pozzolan, and concrete aggregate.

1.06 AIR POLLUTION CONTROL

A. Utilize reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.

B. Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01563 - WATER POLLUTION CONTROL

PART 1 GENERAL

1.01 REFERENCES

A. Bureau of Reclamation (USBR)

1. USBR RSHS-2001 Reclamation Safety and Health Standards

B. Code of Federal Regulations (CFR)

1. 40 CFR, Part 112 Oil Pollution Prevention

C. Public Law

1. Sections 311, 402, and 404 Clean Water Act (Public Law 92-500, as amended)

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01563-1. Pollution Prevention Plan:

1. As required by the stormwater permit for discharges from construction sites.

C. RSN 01563-2, Spill Prevention, Control, and Countermeasure (SPCC) Plan:

1. Submit when SPCC Plan is required in accordance with 40 CFR, Part 112.
    a. Generally, SPCC Plan required where location of construction site is such that oil and oil products from accidental spillage could reasonably be expected to enter into or upon navigable waters of the United States or adjoining shorelines, and aggregate on site oil storage capacity is over 1,320 gallons. Only containers with capacity of 55 gallons and greater are included in determining on site aggregate storage capacity.
2. Reviewed and certified by a registered professional engineer in accordance with 40 CFR, Part 112, as required by section 311 of the Clean Water Act (Public Law 92-500 as amended).

1.03 REGULATORY REQUIREMENTS

A. Construction Safety Standards:

1. Comply with sanitation and potable water requirements of section 7 of USBR RSHS.

B. Laws, Regulations, and Permits:

1. Perform construction operations to comply, and ensure subcontractors comply, with:

a. Applicable Federal, State, and local laws, orders, regulations, and Water Quality Standards concerning control and abatement of water pollution; and terms and conditions of applicable permits issued by permit issuing authority.

b. If conflict occurs between Federal, State, and local laws, regulations, and requirements, the most stringent shall apply.

C. Contractor Violations:

1. If noncompliance should occur, immediately (verbally) report noncompliance to the Government. Submit specific information within 2 days.

2. Violation of applicable Federal, State, or local laws, orders, regulations, or Water Quality Standards may result in the Government stopping site activity until compliance is ensured.

3. The Contractor shall not be entitled to extension of time, claim for damage, or additional compensation by reason of such a work stoppage.

4. Corrective measures required to bring activities into compliance shall be at the Contractor's expense.

1.04 REQUIRED PERMITS

A. Stormwater Discharge Permit Associated With a Construction Site:

1. Notice of Intent (NOI):

a. Both the Bureau of Reclamation and the Contractor shall sign the NOI to obtain coverage under a stormwater general permit to control stormwater discharges from the construction site as required under section 402 of the Clean Water Act (Public Law 92-500, as amended).

2. Pollution Prevention Plan:

a. The Contractor shall prepare a Pollution Prevention Plan as required by the permit.

b. Comply with terms and conditions to obtain and maintain this stormwater discharge permit.

3. Monitoring and Water Treatment:

a. Provide monitoring and water treatment, if necessary, to achieve compliance with applicable Water Quality Standards.

b. Provide the recordkeeping required by the stormwater discharge permit associated with construction activity.

1.05 CONTRACTOR RESPONSIBILITIES

A. Monitoring:

1. Conduct monitoring in order to meet the requirements of the permits which may include:

a. Sampling,

b. Site inspections, and

c. Required laboratory tests to determine effluent characteristics.

B. Reporting Results:

1. The Government will report required monitoring results to appropriate agencies. The section 402 wastewater discharge permit has specific reporting requirements for the permittee for noncompliance when effluent limitations are exceeded.

C. Recordkeeping:

1. Retain records and data required by permits.

PART 2 PRODUCTS

2.01 STRAW BALES

A. Straw bales, if used: Certified weed free.

PART 3 EXECUTION

3.01 POLLUTION CONTROLS

A. Control pollutants by use of sediment and erosion controls, wastewater and stormwater management controls, construction site management practices, and other controls including State and local control requirements.

B. Sediment and Erosion Controls:

1. Establish methods for controlling sediment and erosion which address vegetative practices, structural control, silt fences, straw dikes, sediment controls, and operator controls as appropriate.

2. Institute stormwater management measures as required, including velocity dissipators, and solid waste controls which address controls for building materials and offsite tracking of sediment.

C. Wastewater and Stormwater Management Controls:

1. Pollution prevention measures:

a. Use methods of dewatering, unwatering, excavating, or stockpiling earth and rock materials which include prevention measures to control silting and erosion, and which will intercept and settle any runoff of sediment-ladened waters.

b. Prevent wastewater from general construction activities such as drainwater collection, aggregate processing, concrete batching, drilling, grouting, or

other construction operations, from entering flowing or dry watercourses without the use of approved turbidity control methods.

c. Divert stormwater runoff from upslope areas away from disturbed areas.

2. Turbidity prevention measures:

a. Use methods for prevention of excess turbidity which include, but are not restricted to, intercepting ditches, settling ponds, gravel filter entrapment dikes, flocculating processes, recirculation, combinations thereof, or other approved methods that are not harmful to aquatic life.

b. Wastewaters discharged into surface waters shall meet conditions of section 402, the National Pollutant Discharge Elimination System (NPDES) permit.

c. Do not operate mechanized equipment in waterbodies without having first obtained a section 404 permit, and then only as necessary to construct crossings or perform the required construction.

D. Construction Site Management:

1. Contractor construction operations:

a. Perform construction activities by methods that will prevent entrance, or accidental spillage, of solid matter, contaminants, debris, or other pollutants or wastes into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources.

1) Pollutants and wastes include, but are not restricted to: refuse garbage, cement, sanitary waste, industrial waste, hazardous materials, radioactive substances, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.

2. Stockpiled or deposited materials:

a. Do not stockpile or deposit excavated materials or other construction materials, near or on, stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff, or can in any way encroach upon the watercourse.

3. Petroleum product storage tanks management:

a. Place oil or other petroleum product storage tanks at least 20 feet from streams, flowing or dry watercourses, lakes, wetlands, reservoirs, and any other water source.

b. Do not use underground storage tanks.

c. Construct storage area dikes at least 12 inches high or graded and sloped to permit safe containment of leaks and spills equal to storage tank capacity located in the area plus sufficient freeboard to contain the 25-year rainstorm.

1) Line diked areas with an impermeable barrier at least 50 mils thick.

d. Areas for refueling operations: Lined with impermeable barrier at least 10 mils thick covered with 2 to 4 inches of soil.

END OF SECTION

SECTION 01565 - EXISTING FENCES

PART 1 GENERAL

Not Used

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FENCE REMOVAL

A. Remove existing fences where necessary for performance of the work, only when authorized by the Government. Maintain fences, where designated, until work is completed or their removal is authorized.

3.02 TEMPORARY FENCES

A. Where fences are removed on rights-of-way, provide temporary fence protection for adjacent lands to prevent livestock from straying from or onto adjacent lands, complete with gates and cattle guards.

B. Where existing chain link fence is removed at substations, protect openings made in existing chain link fencing to prevent unauthorized entry into substation area.

1. Provide temporary fencing or other approved means to protect openings, such that, entry through or over protection will entail no less difficulty than that provided by adjacent existing fencing.

2. Maintain temporary protection until openings are closed by permanent construction.

C. If the Contractor does not provide necessary temporary fencing or protection within a reasonable time after need for fencing or protection arises, the Government will cause the work to be performed and backcharge the Contractor for such work.

D. Remove temporary fences and protection as a part of cleanup operations prior to final acceptance of completed work.

3.03 FENCE REBUILDING

A. Rebuild fences in as good or better as condition found.

END OF SECTION

SECTION 01569 - TREE AND PLANT PROTECTION

PART 1 GENERAL

1.01 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01569-1, Protection Plan:

1. Description of protective barriers or other methods used to protect vegetation from damage or injury caused by construction operations.

PART 2 PRODUCTS

2.01 REPLACEMENT TREES AND SHRUBS

A. Species: Same as removed tree or shrub or other species approved by the Government.

B. Size: Same size as removed tree or shrub, or maximum practicable size that can be planted and sustained in the particular environment as approved by the Government.

PART 3 EXECUTION

3.01 PRESERVATION AND PROTECTION

A. Preserve natural landscape and preserve and protect existing vegetation not required or otherwise authorized to be removed.

1. Submit requests to remove vegetation not specifically required to be removed to the Government.

B. Conduct operations to prevent unnecessary destruction, scarring, or defacing of natural surroundings in the vicinity of the work.

C. Move crews and equipment within the rights-of-way and over routes provided for access to the work in a manner to prevent damage to grazing land, crops, or property.

D. Protect vegetation from damage or injury caused by construction operations, personnel, or equipment by the use of protective barriers or other methods approved by the Government.

E. Minimize, to the greatest extent practicable, clearings and cuts through vegetation. Irregularly shape authorized clearings and cuts to soften undesirable aesthetic impacts.

F. Do not use trees for anchorages except in emergency cases or as approved by the Government.

1. For such use, wrap the trunk with a sufficient thickness of approved protective material before any rope, cable, or wire is placed.

2. Submit requests to use trees for anchorage, except for emergencies. Include description of protective material.

G. Use safety ropes where tree climbing is necessary; do not use climbing spurs.

3.02 REPAIR, TREATMENT, OR REPLACEMENT

A. The Contractor is responsible for injuries to vegetation caused by Contractor operations, personnel, or equipment.

B. Employ the services of an experienced arborist or licensed tree surgeon to direct repair, treatment, and replacement of injured vegetation. Submit qualifications of experienced arborist or licensed tree surgeon to Government prior to employment.

C. Repair or treat injured vegetation without delay and as recommended by and under direction of an experienced arborist or licensed tree surgeon.

D. Remove and dispose of trees or shrubs not required or otherwise authorized to be removed that, in the opinion of the Government, are injured beyond saving.

E. Replace removed tree or shrub with tree or shrub approved by the Government.

END OF SECTION

SECTION 01572 - PESTICIDES

PART 1 GENERAL

1.01 APPLICATION OF INSECTICIDES

A. Do not apply any insecticides or herbicides except for insect repellents to be applied directly to clothing or for small quantities of aerosol insecticides, such as fly and spider sprays, to be applied within or directly to offices or shop buildings.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 REFERENCES

A. American Society of Mechanical Engineers (ASME)

1. ASME B1.1-2003 Unified Inch Screw Threads, UN and UNR Thread Form
2. ASME B1.20.1-1983(R2001) Pipe Threads, General Purpose, Inch

B. Bureau of Reclamation (USBR)

1. USBR RSHS Reclamation Safety and Health Standards 2001 Edition.

1.02 DEFINITIONS

A. Essential Characteristics: As used in these specifications, the term "essential characteristics" is synonymous with the term "salient characteristics."

B. Salient Characteristics: Those qualities of an item that are essential to ensure that the intended use of the item can be satisfactorily realized.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Transport and handle manufactured products in accordance with manufacturer's instructions.

B. Store and protect manufactured products in accordance with manufacturer's instructions and USBR RSHS. Obtain these instructions from the manufacturer before delivery of materials to jobsite. Maintain a copy of these instructions at jobsite.

C. Protect materials subject to adverse effects from moisture, sunlight, ultraviolet light, or weather during storage at jobsite.

D. Store curing compounds, sealants, adhesives, paints, coatings, sealers, joint compounds, grouts, and similar products at the temperature and environmental conditions recommended by manufacturer.

1.04 MAINTENANCE

A. Extra Materials:

1. Furnish additional maintenance materials specified as "extra materials" in the specifications. Provide maintenance material identical to installed material and provide from the same manufacturer's production lot as installed material.
2. Package extra materials for storage and label with complete product identification on packaging.

3. Deliver extra materials to the Government at jobsite and place in storage as directed by the Government.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials required for completion of work.

B. Provide type and quality described in these specifications. Make diligent effort to procure specified materials from any and all sources.

C. Furnish new materials conforming to referenced standard unless otherwise specified.

D. For materials not covered by Federal or other specifications, furnish materials of standard commercial quality.

E. If materials to be used deviate from or are not covered by recognized specifications and standards, submit, for approval, justification for and exact nature of the deviation, and complete specifications for materials proposed for use.

F. Make parts accurately to standard gauge where possible.

1. Use unified screw threads conforming to ASME B1.1 or B1.20.1 for threads, including but not limited to those of bolts, nuts, screws, taps, pipes, and pipefittings.

2. For internal connections only, the Contractor may deviate from ASME standards, provided a complete set of taps and dies are furnished as required to facilitate repair or replacement.

G. Permanently mark fasteners with a symbol identifying the manufacturer and with symbol(s) indicating grade, class, type, and other identifying marks in accordance with reference or applicable standard.

2.02 SUBSTITUTIONS

A. If materials required by these specifications become unavailable, because of Government priorities or other causes, substitute materials may be used.

B. Obtain written approval to use substitute materials from the Government. State in the request for approval the amount of the adjustment, if any, to be made in favor of the Government.

C. The Government's determination as to whether substitution will be permitted and as to what substitute materials may be used, shall be final and conclusive.

D. If approved substitute materials are of less value to the Government or involve less cost to the Contractor than specified material, a contract adjustment will be made in favor of

the Government. Where the amount involved or the importance of substitution warrants, a deductive modification to the contract will be issued.

E. No payments in excess of prices offered in the schedule will be made because of substitution of one material for another or because of use of one alternate material in place of another.

2.03 WORKMANSHIP

A. Accurately manufacture and fabricate materials in accordance with best modern practice and requirements of these specifications, notwithstanding minor errors or omissions therein.

B. Use liberal factors of safety and adequate shock-absorbing features in designs, especially for parts subjected to variable stress or shock, including alternating or vibrating stress or shock.

C. Include provisions which prevent components from loosening for shock-absorbing features and parts subject to vibration.

2.04 SOURCE QUALITY ASSURANCE

A. Materials will be subject to inspection in accordance with Article 9 of the General Conditions at any one or more of the following locations, as determined by the Government:

1. At place of production or manufacture.
2. At shipping point.
3. At jobsite.

B. To allow sufficient time to provide for inspection, submit at time of issuance, copies of purchase orders, including drawings and other pertinent information, covering material on which inspection will be made as advised by the Government, or submit other evidence if such purchase orders are issued verbally or by letter.

C. Inspection of materials at any location specified above or waiving of inspection shall not be construed as being conclusive as to whether materials and equipment conform to contract requirements nor shall the Contractor be relieved thereby of the responsibility for furnishing materials meeting the requirements of these specifications.

D. Acceptance of materials will be made only at the jobsite.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. Final inspection and acceptance of materials will be made only at the jobsite after installation and testing. Equipment and materials shall be kept in working order up until the day of substantial completion of the project.

END OF SECTION

SECTION 01721 - SURVEYING

PART 1 GENERAL

1.01 LINES AND GRADES

A. The Government will provide primary control and alignment and grades to be used by the Contractor for completing the work required within the contract.

B. The Contractor will be responsible for performing routine, day-to-day surveys (such as maintaining slope stakes as fill progresses) required for the computation of quantities and layout of the work to be accomplished under this contract.

C. Survey work performed by the Contractor shall be subject to field and office review by the Government.

1.02 SUBMITTALS

A. For any Contractor performed surveys, submit the following in accordance with Section 01330, "Submittals:"

1. Submit for review and filing, within 2 working days of completing and reducing notes for a survey or portion of survey, a copy of such notes. Submit for review and filing, within 2 working days of completing a field survey book, the original field survey book.

2. Submit for approval, accompanying progress payment requests, a copy of applicable quantity survey notes and computations and an itemized statement for work performed or placed during the progress period measured on the basis of surveying.

3. Submit for review and filing, if requested by the Government Inspector, a copy of the workday's survey notes at the conclusion at that workday.

PART 2 PRODUCTS

2.01 CONTRACTOR’S SURVEYING MATERIALS AND EQUIPMENT

A. Provide all materials and equipment required for surveying work, including, but not limited to, instruments, stakes, spikes, steel pins, templates, platforms, and tools. Except as required to be incorporated in the work or left in place, all such materials and equipment shall remain property of the Contractor.

B. Subject instruments to rigid inspection for proper operation at least every two weeks of use. Promptly replace, repair, or adjust defective instruments to the satisfaction of the Government.

2.02 CONTRACTOR'S RECORDS

A. Record the survey data in accordance with recognized professional surveying standards. Record original field notes, computations, and other surveying data in field books furnished by the Government. Rejection of part or all of the field books will be considered if notes or data are illegible or erasures are present. Copied notes or data will not be permitted; rejection of part or all of a field book may necessitate resurveying. Make corrections by ruling or lining out errors.

PART 3 EXECUTION

3.01 LAYOUT OF WORK

A. The Government will establish from primary control points the original lines, grades, and slope staking necessary to control the work. The Government will also be responsible for all measurements and additional surveys that may be required for execution of the work to the tolerances prescribed in these specifications or on the drawings.

B. The Contractor shall establish, place, and replace as required, such additional stakes, markers, and other controls as may be necessary for control, intermediate checks, and guidance of construction operations.

3.02 QUANTITY SURVEYS

A. The Contractor shall perform such surveys and computations as are necessary to determine quantities of work performed or placed during each progress payment period.

B. The Government will perform all surveys necessary to determine final quantities of work in place. The Government will determine final quantities based on established original terrain data.

3.03 SURVEYING

A. Surveys Provided by the Government

1. Cross-sections, original and final.
2. "As-built" surveys as required for utilities, final grading and other features of the work.
3. Alignment staking each 50 feet on tangent and 25 feet on curves.
4. Slope staking each 50 feet on tangent and 25 feet on curves.
5. Stake out structures.

B. Protection of Government's Survey Stakes - Offset stakes, usually 10 feet from disturbance area, will be provided only one time during construction. These offset stakes shall be protected by the Contractor. If any offset stakes are removed by the Contractor's forces before there purpose is served, then re-staking by the Government will be at the Contractor's expense (time and materials based on bill out rate).

C. Surveys Provided by the Contractor

1. Spot check elevation and grade on various features of work.

D. Accuracy (Government)

1. Degree of accuracy will be of an order high enough to satisfy tolerances specified for the work and following:

a. Set structure points within 0.01 foot, except where installation or operation considerations require tighter tolerances.

b. Locate cross-section points within 0.10 foot, horizontally and vertically.

c. Close vertical elevation surveys within 0.05 foot times the square root of the circuit length in miles.

E. Accuracy (Contractor)

1. Degree of accuracy shall be of an order high enough to satisfy tolerances specified for the work and following:

a. Set structure points within 0.01 foot, except where installation or operation considerations require tighter tolerances.

b. Locate cross-section points within 0.10 foot, horizontally and vertically.

c. Close vertical elevation surveys within 0.05 foot times the square root of the circuit length in miles.

END OF SECTION

SECTION 01740 - CLEANING

PART 1 GENERAL

1.01 REFERENCES

A. Bureau of Reclamation (USBR)

1. USBR RSHS-2001 Reclamation Safety and Health Standards

B. Code of Federal Regulations (CFR)

1. 40 CFR 261.3 Definition of Hazardous Waste
2. 49 CFR 171-179 Transportation - Hazardous Waste Regulations

1.02 DEFINITION

A. Hazardous waste: Defined as hazardous by 40 CFR 261.3; or by other Federal, State, or local laws or regulations.

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01740-1, Waste production and disposal records.

C. RSN 01740-2, Hazardous wastes manifest.

1.04 REGULATORY REQUIREMENTS

A. Comply with Federal, State, and local laws and regulations.

B. Comply with USBR RSHS.

C. Conform to most stringent requirement in cases of conflict between specifications, regulatory requirements, and USBR RSHS.

1.05 PROJECT CONDITIONS

A. Report waste materials discovered at jobsite to the Government.

1. Cease work in areas where waste may be hazardous until waste materials are investigated by the Government.
2. If waste is hazardous, the Contracting Officer may order delays in time of performance or changes in work, or both.
3. If such delays or changes are ordered, an equitable adjustment will be made in the contract in accordance with applicable clauses of the contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. Keep work and storage areas free from accumulations of waste materials and rubbish.

3.02 FINAL CLEANUP

A. Remove temporary plant facilities, buildings, concrete footings and slabs, rubbish, unused materials, concrete forms, and other similar materials which are not part of permanent work.

3.03 NONHAZARDOUS WASTE DISPOSAL

A. Combustible waste materials: Dispose by removal from jobsite.

B. Noncombustible waste: Dispose by burying, or by removal from jobsite.

C. Disposal by Removal:

1. Dispose of waste materials at a permitted landfill. Make arrangements with owner for use of landfill and pay required fees.

D. Do not burn waste materials.

E. Disposal by burying.

1. Bury only clean fill waste materials approved by the Government.
2. Bury waste materials in disposal areas as directed or approved by the Government. Cover waste materials with earth to a minimum depth of 3 feet.

3.04 HAZARDOUS WASTE DISPOSAL

A. Recycle hazardous waste whenever possible.

B. Dispose of hazardous waste materials at permitted treatment or disposal facilities.

C. Transport hazardous waste in accordance with 49 CFR 171-179.

3.05 RECORDS

A. Keep records of types and amounts of waste materials produced.

B. Keep records of waste material disposal.

END OF SECTION

SECTION 01781 - PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 01781-1, Final As-built Drawings:

1. Certified marked sets.

1.02 AS-BUILT DRAWINGS

A. Maintain 2 sets of full-size prints of contract drawings marked to show accurate and complete records of as-built conditions. Keep drawings at the jobsite and mark as work progresses.

1. Mark and dimension to show variations between actual construction and that indicated or specified in contract documents.

a. Include buried or concealed construction and utilities.

b. Include existing items, topographic features, and utility lines revealed during construction which differ from those shown on contract drawings.

2. Mark to define construction actually provided where choice of materials or methods is permitted in specifications, or where variations in scope or character of methods is permitted in specifications, or where variations in scope or character of work from that of the original contract are authorized.

B. Use standard drafting practice to represent changes and include supplementary notes, legends, and details necessary to clearly portray as-built construction.

C. Mark as-built drawings in the following colors:

1. Red - Additions to original drawings.

2. Green - Deletions to original drawings.

3. Blue - Notations necessary for explanation of as-built markings.

D. Allow the Government to review the drawings at all times.

E. Upon completion of work, sign marked prints as certified correct.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 02220 - DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Demolition and removal of structural site elements.
2. Required demolition of concrete and asphalt, including cutting of the asphalt as indicated on the drawings.

B. Related Sections:

1. Environmental controls: Division 1.

1.02 SUBMITTALS

A. RSN 02220-1, Photographs.

1. Photographs: Before starting work, file with the Government Inspector color photographs printed on 4x6 photo paper documenting existing conditions that later could be mistaken for damage caused by demolition operations as listed in the submittal list. Digital Photos or Photos on CD will not be acceptable.

1.03 PROJECT CONDITIONS

A. Existing Conditions:

1. After the project is begun, the Contractor is responsible for the condition of structures to be demolished.
2. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, the procedures outlined in Article 7 of the General Conditions will be followed. While awaiting the Government's response, the Contractor shall reschedule operations if necessary to avoid delay of overall project.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 EXAMINATION

A. Survey existing conditions and correlate with drawings and specifications to determine extent of demolition required.

B. Insofar as is practicable, arrange operations to reveal unknown or concealed structural conditions for examination and verification before removal or demolition.

3.02 PREPARATION

A. Protection:

1. Provide for the protection of persons passing around or through the area of demolition.
2. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.
3. Erect temporary protection such as walks, fences, railings, canopies, etc., where required by authorities having jurisdiction.
4. Protect existing site appurtenances and landscaping to remain.

3.03 EXPLOSIVES

A. Do not use explosives.

3.04 POLLUTION CONTROLS

A. Control as much as practicable the spread of dust and dirt.

B. Observe environmental protection regulations.

C. Do not allow water usage that results in freezing or flooding.

D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.05 DEMOLITION – GENERAL

A. Remove: Unless items are otherwise indicated to be reinstalled or salvaged, remove and dispose of the materials. Asphalt surfacing designated to be removed may be recycled and utilized as roadbase if it meets the gradation requirements, or removed and disposed of at an approved site.

B. Existing to Remain: Construction or items indicated to remain shall be protected against damage during demolition operations. Where practicable, and with the Government

Inspector's permission, the Contractor may elect to remove items to a suitable storage location during demolition and then properly clean and reinstall the items.

3.06 DEMOLITION ON OR BELOW GRADE

A. Remove concrete slabs-on-grade and asphalt as indicated on drawings.

B. Remove footings and foundations below grade.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of materials resulting from demolition operations. Do not allow materials to accumulate on site.

B. Dispose of bituminous materials off site or recycle where possible.

C. Transport materials resulting from demolition operations and legally dispose of off-site.

D. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

E. Noncombustible materials may be buried as per Section 01740.

3.08 CLEANING

A. Remove tools and equipment. Dispose of scrap.

B. Leave exterior areas free of debris.

C. Return structures and surfaces that are to remain to the condition to which they existed prior to commencement of demolition.

END OF SECTION

SECTION 02230 - SITE CLEARING

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Removal of trees and other vegetation indicated for removal.
2. Topsoil stripping.
3. Clearing and grubbing.
4. Removing rocks.

1.02 PROJECT CONDITIONS

A. Protection of Existing Improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place.

1. Restore damaged improvements to their original condition.

B. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation as per Section 01569.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 SITE CLEARING

A. General: Remove trees, shrubs, grass, and other vegetation, as required, to permit installation of new construction. Removal includes digging out and off-site disposal of stumps and roots.

1. Cut minor roots and branches of trees to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
2. Do not clear any more area than is needed for construction.

B. Topsoil: Topsoil is defined as surface material found in a depth of not less than 6 inches.

1. In areas of new construction, strip topsoil to 6 inches below grade in a manner to prevent intermingling with underlying subsoil or other objectionable material.

a. Where existing trees are to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

2. Stockpile topsoil in storage piles. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.

3. Place topsoil in areas that have been disturbed and will be revegetated.

C. Clearing and Grubbing: Protect trees and shrubs except for those indicated to be removed.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

a. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.

4. Removing abandoned underground piping or conduits interfering with construction is included under this Section.

5. Move large rocks to an area approved by the Park Manager.

3.02 DISPOSAL OF WASTE MATERIALS

A. Dispose of waste materials as per Section 01740.

END OF SECTION

SECTION 02302 - COMPACTING EARTH MATERIALS

PART 1 GENERAL

1.01 REFERENCES

A. ASTM International (ASTM)

1.	ASTM D 422-63(2002)	Particle-Size Analysis of Soils
2.	ASTM D 653-04	Terminology Relating to Soil, Rock, and Contained Fluids
3.	ASTM D 698-00ae1	Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
4.	ASTM D 1140-00	Amount of Material in Soils Finer than the No. 200 (75-µm) Sieve
5.	ASTM D 1556-00	Density and Unit Weight of Soil in Place by the Sand-Cone Method
6.	ASTM D 2216-98	Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
7.	ASTM D 2487-00	Classification of Soils for Engineering Purposes (Unified Soil Classification System)
8.	ASTM D 2488-00	Description and Identification of Soils (Visual-Manual Procedure)
9.	ASTM D 2922-04	Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
10.	ASTM D 3017-01	Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
11.	ASTM D 4253-00	Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
12.	ASTM D 4254-00	Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
13.	ASTM D 4318-00	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
14.	ASTM D 4564-02a	Density of Soil in Place by the Sleeve Method
15.	ASTM D 4643-00	Determination of Water (Moisture) Content of Soil by the Microwave Oven Heating
16.	ASTM D 4718-87(2001)	Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

17. ASTM D 4914-99 — Density of Soil and Rock in Place by the Sand Replacement Method in a Test Pit

18. ASTM D 4959-00 — Determination of Water (Moisture) Content of Soil by Direct Heating

19. ASTM D 5030-04 — Density of Soil and Rock in Place by the Water Replacement Method in a Test Pit

20. ASTM D 5080-00 — Rapid Determination of Percent Compaction

B. Bureau of Reclamation (USBR)

1. USBR EM - Earth Manual, Part 2, Third Edition (1990)

2. Procedure No. and Title:

a. USBR 3900-89 — Standard Definitions of Terms and Symbols Relating to Soil Mechanics

b. USBR 5000-86 — Determining Unified Soil Classification (Laboratory Method)

c. USBR 5005-86 — Determining Unified Soil Classification (Visual Method)

d. USBR 5300-89 — Determining Moisture Content of Soil and Rock by the Oven Method

e. USBR 5315-89 — Determining Moisture Content by the Microwave Method

f. USBR 5325-89 — Performing Gradation Analysis of Gravel Size Fraction of Soils

g. USBR 5330-89 — Performing Gradation Analysis of Fines and Sand Size Fraction of Soils, Including Hydrometer Analysis

h. USBR 5335-89 — Performing Gradation Analysis of Soils Without Hydrometer

i. USBR 5350-89 — Determining the Liquid Limit of Soils by the One-Point Method

j. USBR 5355-89 — Determining the Liquid Limit of Soils by the Three-Point Method

k. USBR 5360-89 — Determining the Plastic Limit and Plasticity Index of Soils

l. USBR 5500-89 — Performing Laboratory Compaction of Soils--5.5-lbm Rammer and 18-in Drop

m. USBR 5525-89 — Determining the Minimum Index Unit Weight of Cohesionless Soils

n.	USBR 5530-89	Determining the Maximum Index Unit Weight of Cohesionless Soils
o.	USBR 5605-89	Determining Permeability and Settlement of Soils Containing Gravel
p.	USBR 7205-89	Determining Unit Weight of Soils In-Place by the Sand-Cone Method
q.	USBR 7215-89	Determining the Unit Weight of Soils In-Place by the Sleeve Method
r.	USBR 7220-89	Determining Unit Weight of Soils In-Place by the Sand Replacement Method in a Test Pit
s.	USBR 7221-89	Determining Unit Weight of Soils In-Place by the Water Replacement Method in a Test Pit
t.	USBR 7230-89	Determining Unit Weight and Moisture Content of Soil In-Place - Nuclear Moisture-Density Gauge
u.	USBR 7240-89	Performing Rapid Method of Construction Control
v.	USBR 7250-89	Determination of Percent Relative Density
w.	USBR 7255-89	Determining the Percent Compaction of Earthwork for Construction Control

1.02 DEFINITIONS

A. Use definitions from USBR 3900 or ASTM D 653.

B. Control Fraction: The portion of a soil sample consisting of particles smaller than a designated sieve size. The fraction is used to compare in-place unit weight with standard laboratory unit weight. The control sieve size depends on the laboratory test used (USBR 7230).

C. C-Value: The expressed as a percentage of (1) in-place unit weight at fill moisture content to (2) the wet unit weight of a laboratory-compacted specimen prepared at fill moisture content as determined by the rapid method of construction control (USBR 7240, ASTM 5080). The C-Value is a comparison of compactive effort of field compaction equipment to standard laboratory compactive effort.

D. D-value: The ratio expressed as a percentage of (1) in-place wet unit weight at fill moisture content to (2) laboratory maximum wet unit weight as determined from a compaction curve constructed at fill moisture content as determined by the rapid method of construction control. The D-value is the equivalent of percent compaction (USBR 7240, ASTM 5080).

E. Percent Relative Compaction: The percent compaction of a cohesionless soil where the laboratory maximum density is determined by Maximum Index Unit Weight test (USBR 5530, ASTM 4253).

F. Percent Relative Density - (D_d percent) : The ratio of, (1) the difference between void ratio of a cohesionless soil in the loosest state and any given void ratio, to (2) the difference between its void ratios in the loosest state and densest state (USBR 7250)

1.03 PROJECT ENVIRONMENTAL REQUIREMENTS

A. Do not place and compact soil under following conditions:

1. Air temperature below freezing in shade.
2. Rain that creates puddles in clayey or silty materials.
3. Heat or wind or both that dries material below special moisture conditions.
4. Ice or snow pockets are visible in soil being placed.

PART 2 PRODUCTS

2.01 CLASSIFICATION

A. When required, classify earth materials using the Unified Soil Classification System (USCS) according to ASTM D 2487 (or USBR 5000) or ASTM D 2488 (or USBR 5005).

1. Gradation tests for classification: ASTM D 422 or D 1140 (USBR 5325, 5330, or 5335).
2. Atterberg limits testing for classification: ASTM D 4318 (USBR 5350, 5355, or 5360).

2.02 SOIL TYPES

A. Clean Fill:

1. Any soil classification except for Peat (PT), Organic Silts and Organic Clays (OL and OH), and Elastic Silt (MH).
2. Free of roots, stumps, limbs, vegetation, organic matter, and ice.
3. Does not contain construction debris, scrap materials, refuse, man-made wastes, or chemical or hydro-carbon contamination.

B. Do not use frozen soils.

C. Special Gradations/Plasticity

1. In some cases, such as embedment for buried pipe, special gradations and/or plasticity characteristics may be required. These requirements are given for each special material required in the appropriate section.

2.03 DESIGNATION OF SOILS FOR COMPACTION

A. Requirements for lift thickness, method of compaction, and method of determining degree of compaction depends on whether soil is considered to be silty or clayey, cohesionless, or cohesionless containing some silt and clay.

B. Silty or Clayey Soils:

1. Contain appreciable amounts of fines (generally more than 15 percent fines).
2. Classified as GM, GC, SM, SC, CL, ML, CH, or any dual symbol or borderline soil beginning with one of these symbols.

C. Cohesionless Soils:

1. Contain few fines (generally less than 5 percent fines).
2. Classified as GW, SW, GP, SP, or any borderline soil beginning with any of these symbols.

D. Cohesionless Soils Containing Some Clay and Silt:

1. Contain some clay and silt contain between 5 and 15 percent fines.
2. Classified with dual symbol soils such as GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC.

2.04 MAXIMUM PARTICLE SIZE

A. Backfill against specific structures:

1. Maximum particle size limitations described in appropriate sections.
2. Otherwise, no cobbles or boulders.

B. Compacted soil for embankment: No cobbles larger than 5 inches or boulders.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

A. Clear, grub, and strip.

B. Prepare surface so that first compacted lift will be placed on firm, stable base. Compact surface to specified compaction, if necessary.

C. For water-retaining compacted fill, scarify and moisten surface to provide satisfactory bonding surface before placing layer of material to be compacted.

D. Do not place soil on frozen surface.

3.02 SOIL MOISTURE CONTENT

A. Moisten or aerate material, as necessary, to provide moisture content that will readily facilitate obtaining specified compaction. Add water to soil only in increments that will permit moisture content to be uniform and homogenous throughout each layer after mixing.

B. Silty and Clayey Soils:

1. Moisture content during compaction: Not greater than 2 percentage points wet or not less than 2 percentage points dry of optimum moisture content.

2. Add no more than 2 percent water to fill by sprinkling just prior to compaction when fill is clayey and contains dry clods of clay.

   a. If clayey borrow soil is more than 2 percent below optimum moisture, pre-conditioning and curing may be required to obtain uniform and homogenous distribution of moisture in the clods.

   b. Use of disks, harrows, or rakes may be required to blend moisture in the borrow area.

3. Moisture content will be determined as follows:

   a. Moisture content is determined on the minus no. 4 sieve size control fraction material.

   b. Variation from Optimum Moisture Content:

      1) Difference between optimum moisture and compaction moisture can be measured in accordance with ASTM D 5080 (or USBR 7240).

   c. Moisture Content Comparison:

      1) Optimum moisture content determined by ASTM D 698 (or USBR 5500).

      2) Compared to field compaction moisture content with moisture contents determined in accordance with:

         a) ASTM D 2216 (or USBR 5300), or

         b) ASTM D 3017 (USBR 7230). The moisture from the nuclear gage will require corrections for gage error for the specific soils tested and the moisture content of the total material may require adjustment for the control fraction (see USBR 7230, Method C; ASTM D 4718), or

         c) ASTM D 4959, or ASTM D 4643 (USBR 5315), provided the results have been correlated to ASTM D 2216 (USBR 5300) for specific soil tested.

C. Cohesionless Soils:

1. Add water during compaction, as necessary, since these soils are free-draining.

3.03 PLACEMENT

A. Place soils to be compacted in horizontal layers.

B. If necessary, blend materials so that compacted fill is homogenous and free from lenses, pockets, streaks, voids, laminations, or other imperfections.

3.04 COMPACTION

A. Compact material with following methods and techniques appropriate to type of soil.

1. Special compaction: Compaction close to structures or in confined space.

B. Silty or clayey material:

1. Compact with mechanical impact tampers, tamping rollers, vibrating pad foot rollers, rubber tire rollers, other suitable compaction equipment, or equipment travel.
    a. Uniformly distribute equipment passes.
    b. Compact in horizontal layers to compacted thickness of 6 inches or less.
2. Special compaction: Compact with hand held impact tampers, or small tamping equipment.
    a. Uniformly distribute effort.
    b. Compact in horizontal layers to compacted thickness of 4 inches.
3. Density:
    a. Percent Compaction, minimum: 95 percent, or
    b. D-value, minimum: 95 percent
    c. As determined on portion of soil passing the No. 4 sieve.

C. Cohesionless free-draining material:

1. Compact in horizontal layers in maximum compacted lift thicknesses of:
    a. Tampers or rollers: 6 inches
    b. Crawler-type tractors, vibrating drum rollers, surface vibrator, or similar equipment: 12 inches
    c. Saturation and internal vibration: Penetrating depth of vibrator.
2. Special compaction: Compact with hand held impact tampers, vibrating plate tampers, or small tamping equipment.
    a. Uniformly distribute effort.
    b. Compact in horizontal layers to compacted thickness of 6 inches.
3. Density:
    a. Relative Density, minimum: 70 percent, or
    b. Relative Compaction. Minimum: 95 percent.
    c. As determined on portion passing the 3-inch sieve

D. Cohesionless Soils Containing Some Silt and Clay:

1. Compact in accordance with either procedure above.

2. Density:

   a. Percent Compaction, minimum: 95 percent, or

   b. Relative Density, minimum: 70 percent, or

   c. Relative Compaction, minimum: 95 percent.

   d. Using whichever testing procedure result requires higher in-place dry density.

E. Adjustment:

1. Silty and clayey soils containing more than 50 percent gravel: Required D ratio or Percent Compaction may be adjusted in accordance with appropriate curve on Figure 4 in USBR 5605.

F. Demonstration:

1. Lift thicknesses may vary depending on equipment and methods. Before changing requirements in this section, demonstrate that required density will be obtained.

3.05 MEASURE OF COMPACTION

A. Degree of soil compaction will be determined by one of the following.

B. Silty or clayey soils:

1. Unit weight of soils in-place:

   a. ASTM D 1556 (or USBR 7205), or

   b. ASTM D 4914 (or USBR 7220), or

   c. ASTM D 5030 (or USBR 7221), or

   d. ASTM D 2922 and D 3017 (or USBR 7230.

2. Percent Compaction will be determined by one of the following:

   a. Rapid Method: ASTM D 5080 (or USBR 7240).

   b. Laboratory Compaction Test: Comparison of in-place density of minus no. 4 sieve size control fraction to laboratory maximum dry density as determined by ASTM D 698, Procedure A (or USBR 5500).

   c. Silty and clayey soils containing more than 5 percent gravel:

      1) In-place unit weight of minus no. 4 size control fraction determined by screening gravel, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (USBR 7205).

C. Cohesionless soils: Compaction will be measured by determination of Percent Relative Density or Percent Relative Compaction as specified.

1. Unit weight of soils in-place:

a. ASTM D 1556 (or USBR 7205), or

b. ASTM D 4564 (or USBR 7215), or

c. ASTM D 4914 (or USBR 7220), or

d. ASTM D 5030 (or USBR 7221), or

e. ASTM D 2922 and D 3017 (or USBR 7230).

2. Percent Relative Density: ASTM D 4254 (or USBR 7250)

a. In-place density of minus 3-inch size control fraction is compared to minimum and maximum index densities.

b. Laboratory test for minimum index density: ASTM D 4254 (or USBR 5525)

c. Laboratory test for maximum index density, ASTM D 4253 (or USBR 5530).

d. Cohesionless soils containing more than 5 percent cobbles:

1) In-place unit weight of minus 3-inch size control fraction determined by screening cobbles, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (or USBR 7205).

3. Percent relative compaction:

a. In-place density of minus 3-inch size control fraction is compared to maximum index density determined by ASTM 4253 (or USBR 5530).

b. In-place unit weight of minus 3-inch size control fraction determined by screening cobbles, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (or USBR 7205).

3.06 FIELD QUALITY CONTROL

A. Testing

1. The Government or its representative will perform tests as required to verify that type of soil used, placement of soil, and compaction of soil conform to contract requirements.

2. Notify the Government 24 hours before compaction work begins and 24 hours before significant change in compaction operations (major change in equipment or procedure used).

3. Notify the Government immediately of equipment change due to breakdown, or re-deployment.

B. Testing Frequency

1. Frequency of testing is at discretion of the Government.

2. Greater frequency of testing is normally performed at beginning of new work, new work crew, or new equipment.

3. After a successful work operation pattern is established, testing frequency is normally performed at these minimum guidelines.

   a. At least one test for each shift for each compaction operation.

   b. Compacted backfill against structures, over pipe, and for building foundations: One test for every 500 yd^3.

   c. Compacted embedment: One test for every 1000 linear ft around pipe.

   d. Additional tests may be performed at sites considered questionable by a Government Inspector; such as suspected incomplete compaction, surfaces that may have become excessively wet or dry since compaction, compacted surfaces torn up by subsequent equipment travel, or other similar circumstances.

C. Tests:

1. Standards listed in Table 02302A - Standard Used for Testing, will be used by the Government or its representative for testing compacted soil for conformance with specification requirements. Substitution or modification of standards shall be done only with concurrence of all parties.

Table 02302A - Standard Used For Testing

PROCEDURE	STANDARD NO.
Soil Classification	ASTM D 2487 (or USBR 5000) ASTM D 2488 (or USBR 5005)
Gradation Analysis	ASTM D 422 (or USBR 5325, 5330, 5335)
Atterberg Limits	ASTM D 4318 (or USBR 5350, 5355, 5360)
Moisture Content	ASTM D 2216 (or USBR 5300) ASTM D 3017 (or USBR 7230) ASTM D 4643 (or USBR 5315)
Relative Density of Cohesionless Soils	ASTM D 4253 and ASTM D 4254 (or USBR 5525 and 5530 and 7250)
In-Place Density: Sand Cone Test Pits Sleeve	ASTM D 1556 (or USBR 7205) ASTM D 4914 (or USBR 7220) ASTM D 5030 (or USBR 7221) ASTM D 4564 (or USBR 7215)
Rapid Construction Control	ASTM D 5080 (or USBR 7240)
Laboratory Maximum Density	ASTM D 698, Procedure A (USBR 5500)

D. Contractor Support

1. Provide timely access to areas for density testing and excavate and level an area in compacted material to provide a surface for testing.

    a. Fills compacted by sheepsfoot rollers are normally tested one or two lifts below surface.

2. When density is being measured by a sand-cone device (ASTM D 1556, USBR 7205), cease construction activity in immediate vicinity of testing.

3. Dig test pits as requested to examine compacted soil against structures or pipe.

4. Backfill test pits to original requirements.

5. Provide warning lights, flags, or other safety devices as needed by testing personnel.

6. Provide adequate lighting for performing test if required because of darkness.

END OF SECTION

SECTION 02315 - EXCAVATING, BACKFILLING, AND COMPACTING

PART 1 GENERAL

1.01 SUMMARY

A. Includes But Not Limited To

1. Perform Project excavating, trenching, backfilling, and compacting as described in Contract Documents, except as specified below.

1.02 REFERENCES

A. American Society For Testing And Materials

1. ASTM D 2216-98, "Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass"

1.03 PROJECT/SITE CONDITIONS

A. Existing Conditions

1. If existing utility lines not described in Contract Documents are encountered, contact Government Inspector before proceeding. The Contractor is responsible for contacting "blue stakes" before excavation.
2. Rock excavation may be required.
    a. Blasting is not allowed.

1.04 SEQUENCING

A. Do not backfill until instructed by the Government Inspector.

PART 2 PRODUCTS

2.01 MATERIALS

A. Backfill At Footings, Foundations, & Sitework Concrete

1. Well graded material free from debris, organic material, stones over 5 inches diameter, frozen materials, brick, lime, concrete, and other material which would prevent adequate performance of backfill.
2. Fill shall be granular, non-plastic material.
3. 90 percent minimum of fill shall be smaller than 1-1/2 inch in any direction.

PART 3 EXECUTION

3.01 EXAMINATION

A. Carefully examine site and available information to determine type soil to be encountered. Discuss problems with Government Inspector before proceeding with work.

3.02 PERFORMANCE

A. Excavating

1. Shelter Footings & Foundations

a. Excavate as necessary for proper placement and forming of footings and foundations.

b. Bottom of excavations to receive footings shall be undisturbed soil.

c. Excavation Carried Deeper Than Required

1) Under Footings - Fill with concrete specified for footings.

2) Under Slabs - Use specified compacted backfill material.

2. Pavement & Concrete Site Elements –

a. Excavate as necessary for proper placement and forming of concrete site elements and pavement structure. Remove vegetation and deleterious material and remove from site.

b. Backfill over-excavated areas with compacted native material.

c. Remove and replace exposed material which becomes soft or unstable.

3. If unusual excavating conditions are encountered, stop work and notify Government Inspector.

B. Backfilling

1. Around Structures

a. Hand backfill when close to structure or where damage to the structure might result.

C. Compacting

1. General –

a. Do not use puddling or jetting to consolidate fill areas.

b. If site material will not compact to specified density or it is suspected that it will not, remove and replace with material specified in PRODUCT section above.

2. Sub-Grade –

a. Under Slabs/Pads, Concrete Site Elements

1) Mechanically tamp to 95 percent minimum of maximum density as established by Section 02302.

3. Base & Backfill –

a. Under Slabs - Dampen (do not soak), and mechanically tamp to 95 percent minimum of maximum density as established by Section 02302.

b. Under Concrete Site Elements & Around Foundation Walls - Dampen (do not soak), and mechanically tamp to 95 percent minimum of maximum density as established by Section 02302.

c. Backfill Under Footings - Not allowed.

d. Other Backfills - Place other fills in 12 inch layers and compact to 95 percent minimum of maximum density as established by Section 02302.

3.03 REPAIR/RESTORATION

A. Damage to other portions of the Work due to work of this Section shall be repaired at no additional cost to the Government.

3.04 CLEANING

A. Debris and material not necessary for Project are property of the Contractor and are to be removed prior to completion of Project. However, if backfill material necessary for the Project is hauled away, replace with specified backfill material.

END OF SECTION

SECTION 02316 - IMPORTED EARTH MATERIALS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes crushed gravel used for but not limited to the following:

1. Structures as indicated on the drawings.
2. As base for roads and walkways.
3. Surfacing for trails.

1.02 SUBMITTALS

A. General: Submit the following in accordance with Section 01330.

B. RSN 02316-1

1. Material Certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.
2. Job-mix gradation analysis, in writing at least 10 working days before placing begins.

PART 2 PRODUCTS

2.01 MATERIALS

A. Crushed Gravel or Crushed Rock: Angular, hard, dense, durable particles, free from vegetable matter, lumps or balls of clay, and other deleterious substances, crushed and graded uniformly to meet the grading requirements, by weight, as determined by laboratory sieves, shown in Table 02316A.

Table 02316A. - Grading Requirements (Crushed Gravel)	
Sieve Size	Percent by Weight Passing Sieve Size
1-inch square mesh sieve	100
3/4-inch square mesh sieve	70 to 98
No. 4-mesh sieve	36 to 60
No. 8-mesh sieve	25 to 47
No. 20-mesh sieve	12 to 31
No. 200-mesh sieve	8 to 15

1. Material passing the No. 200-mesh sieve to be less than 0.60 the material passing the No. 40-mesh sieve as determined by test.
2. Material passing the No. 40-mesh sieve to have a liquid limit of not more than 25 and a plasticity index of not more than 6; except that where the plasticity index is zero, the liquid limit to be not more than 30.

B. Material Source: Obtain materials from any source subject to the Government's approval.

C. Binder: If surfacing material does not contain a sufficient quantity of natural cementitious material to bond readily under the action of traffic, add to and incorporate in the surfacing material a binder consisting of rock screenings or other cementitious material obtained from sources subject to the Government's approval. After the binder has been added, provide mixture having a combined grading within the limits specified in Table 02316A. The binder may be incorporated in the material at the point where the material is produced or may be incorporated uniformly on the roadway in the amounts directed.

PART 3 EXECUTION

3.01 STRUCTURES

A. Place in 6-inch lifts and compact in accordance with Section 02302.

3.02 ROAD AND WALKWAY PREPARATION

A. Prepare subgrade of roads and walkways to conform to prescribed grades and cross sections by means of blade graders or motor patrols and compact subgrade so that base material, when placed, will not mix with the subgrade material.

3.03 PLACING ON ROADS AND WALKWAYS

A. Place crushed-gravel in two lifts to the width and thickness shown on the drawings.

B. Spread the material on the prepared subgrade to such depth that, when thoroughly compacted, it will conform to the prescribed grades and dimensions. Avoid segregation of coarse and fine particles and remix any segregated materials by harrowing and blading. Start the depositing and spreading of the material at the point nearest the point of loading. Route the hauling equipment over the surfacing material already in place. Distribute the travel evenly over the entire width of the surfacing so as to distribute the compacting effect of the equipment to the best practicable advantage. Accompany the hauling and spreading by blading or dragging, or both, to provide a smooth surface.

C. Add water if necessary to produce proper compaction. Method of adding water to the surfacing material is subject to the approval of the Government Inspector.

END OF SECTION

SECTION 02342 – GEOTEXTILES

PART 1 GENERAL

1.01 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM)

a. ASTM D 3786-01 -- Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphragm Bursting Strength Tester Method

b. ASTM D 4491-99a(2004) -- Test Method for Water Permeability of Geotextiles by Permittivity

c. ASTM D 4533-91(1996) -- Test Method for Trapezoid Tearing Strength of Geotextiles

d. ASTM D 4632-91(2003) -- Test Method for Gross Breaking Load and Elongation of Geotextiles

e. ASTM D 4751-04 -- Test Method for Determining the Apparent Opening Size of a Geotextile

f. ASTM D 4833-00 -- Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products

g. ASTM D 5199-01 -- Test Method for Measuring Nominal Thickness of Textile Materials

h. ASTM D 5261-92(2003) -- Test Method for Measuring Mass per Unit Area of Geotextile

1.02 SUBMITTALS

A. RSN 02371-1, Submit the following in accordance with the Section 01330 not less than 14 days prior to installation:

1. Certification: The manufacturer's certification that the geotextile being furnished meets the chemical, physical, and manufacturing requirements of these specifications. If sewn seams are used, submit a certification stating that the polymeric threads to be used for sewing have chemical resistance properties equal to or exceeding those of the geotextile. Include in the certification data showing that sewn seams have a tensile strength of not less than 70 percent of that of the parent geotextile material.

2. Samples and test results: Submit samples of geotextile material as required by Article 2.2, below. Submit a copy of the manufacturer's certified test results

covering the properties listed in Table 02371A. - Geotextile Physical Properties, with each sample.

3. Description: Description of the Contractor's method to protect exposed geotextile in those cases where covering is not possible within 14 days.

1.03 DELIVERY, STORAGE, AND HANDLING

A. The Contractor shall be responsible for the transportation, handling, storage, and care of the geotextile prior to acceptance by the Government.

B. Wrap geotextile rolls in relatively impermeable and opaque protective covers. Mark or tag geotextile rolls with the manufacturer's name, product identification, lot number, roll number, and roll dimensions. Additionally, mark any special handling requirements such as "This Side Up" or "This Side Against Soil to be Retained" on the geotextile itself.

C. Protect the geotextile at all times from ultraviolet light exposure, temperatures greater than 140˚ F (60˚ C), precipitation or other inundation, mud, dirt, dust, puncture, cutting, or any other damaging or deleterious conditions. Elevate and cover material stored outside with a waterproof membrane.

PART 2 PRODUCTS

2.01 MATERIALS

A. Geotextiles

1. Provide geotextiles having the minimum average roll values listed in Table 02371A.

2. Provide geotextile nonwoven products comprised of long-chain polymeric filaments composed of at least 85 percent, by weight, polyolefins of polyesters. Orientate these filaments into a stable network which retains its structure during handling, placement, and long-term service.

3. Provide geotextiles capable of withstanding direct exposure to sunlight for 14 days with no measurable deterioration.

Table 02371A. - Geotextile physical properties

Property	Test method	Required value
Seam Strength (lbs), minimum	ASTM D 4632	180 lb.
Grab tensile (lbs), minimum	ASTM D 4632	200 lb.
Trapezoidal tear (lb), minimum	ASTM D 4533	50 lb.
Puncture strength (lb), minimum	ASTM D 4833	80 lb.
Burst strength (lb/in^2), minimum	ASTM D 3786	320 lb./sq.in.
Mass Area (oz/yd^2)	ASTM D 3776	8.0 oz/yd^2

2.02 TESTING

A. Submit manufacturer=s certification that the material meets proper ASTM requirements. Samples of the geotextile material will be tested by the Government to determine that it meets specifications requirements. Submit samples from the actual rolls of the geotextile to be furnished. Sample the number of rolls as required in Table 02371B. Take the samples, one yard in length, from the entire roll width. Mark the samples as to project description and number, product identification, lot number, roll number, machine direction, quantity represented, and solicitation/specifications number.

B. The frequency of sampling may be increased in the event that test results show that the geotextile does not meet specifications requirements.

Table 02371B. - Geotextile sampling requirements.

Number of rolls to be furnished	Number of rolls to be sampled
1-2	1
3-8	2
9-27	3
28-64	4
65-125	5
126-216	6
217-343	7
344-512	8
513-729	9
730-1000	10

PART 3 EXECUTION

3.01 EXAMINATION

A. Ensure that the surface to receive geotextile are relatively free of obstructions, depressions, debris, and soft or low-density pockets of material. Remove rounded projections greater than 3 inch. Remove all sharp projections that have the potential of puncturing the fabric.

3.02 INSTALLATION

A. Place the geotextile in the manner and at the locations shown on the drawings.

B. Lay the geotextile smoothly, free of tension, stress, folds, wrinkles, or creases so far as is practical and except where required in these specifications. Handle all geotextiles in such a manner as to ensure they are not damaged in any way. Install the geotextile in accordance with the following:

1. In the presence of wind, weight geotextiles with sandbags or the equivalent. Install sandbags during placement and retain until replaced with cover material.

2. During placement, take care not to entrap in the geotextile stones, soil, excessive dust, or moisture that could damage the geotextile, or which could hamper subsequent seaming.

3.03 SEWING

A. Sew geotextiles continuously (spot sewing is not allowed) or overlap a minimum of 36 inches. Shingle overlaps on slopes with the upstream roll placed over the

downstream roll. The geotextile may be pinned, stapled, or weighted with sand bags to hold it in position. Anchor terminal ends of the geotextile with key trenches or aprons at the crest and toe of the slopes. Sew using polymeric thread of contrasting color with chemical resistance properties equal to or exceeding those of the geotextile. Provide sewn seams with strength not less than 70 percent of the parent material strength.

3.04 BACKFILL

A. Cover the geotextile with riprap within 14 days after geotextile placement. If covering of the geotextile with the specified material is not possible within 14 days, protect the exposed and positioned geotextile with a suitable method of cover approved by the Government Inspector. Replace geotextile not protected in this manner.

B. Place riprap so as not to damage the geotextile, with the drop height not to exceed 1 foot. Before placement of the riprap, demonstrate that the placement technique will prevent damage to the geotextile. Begin riprap placement at the toe and proceed up the slope. Do not drive or operate equipment directly on the geotextile or riprap at any time.

3.05 REPAIRS

A. At the time of placement, the geotextile will be rejected if it has defects, rips, holes, flaws, deterioration, or damage.

B. Replace or repair any part of the geotextile damaged during installation or placement of riprap prior to proceeding with the work, in the following manner:

1. Remove the riprap or backfill material from the damaged area of geotextile and remove any soil or other material which may have penetrated the torn geotextile.

2. Repair damaged geotextile by placing an additional layer of the specified geotextile so as to cover the damaged area and either sew the patch to undamaged geotextile according to the sewing requirements stated in Article 3.03 or overlap the undamaged geotextile by at least 3 feet on all sides.

3.06 SAFETY

A. If white colored geotextile is used, take precautions against "snowblindness" of personnel.

3.07 INSPECTION

A. After installation, conduct an examination of the entire geotextile surface to ensure that no potentially harmful foreign objects, such as needles, are present. Remove any foreign objects or replace the geotextile.

END OF SECTION

SECTION 02375 - RIPRAP

PART 1 GENERAL

1.01 DESCRIPTION

A. This section includes materials and installation of riprap for the protection of channels, structures, and embankments.

1.02 SUBMITTALS

A. Submit in accordance with Section 01330.

B. RSN 02375-1, Riprap

1. Submit letter identifying source of stone.
2. Submit analysis from an independent laboratory showing specific gravity, absorption, and durability of stone.

PART 2 PRODUCTS

2.01 STONE FOR RIPRAP

A. Stone for riprap shall be quarry stone, well-graded. Stone shall be of such shape as to form a stable protection for the required section. Do not use flat or elongated shapes unless the thickness of the individual pieces is at least one-third the length. Material shall be clean and free from deleterious impurities including alkali, earth, clay, refuse, and adherent coatings.

B. Hand-placed riprap: Stones of not less than 3 inches in thickness, with seventy-five percent of stones being at least one-third of a cubic foot in volume.

2.02 QUALITY CONTROL OF STONE

A. Visual evaluation of the quarry, including examination of blast samples and diamond drill core samples and suitable tests and service records, may be used to determine the acceptability of the stone. Notify the Area Manager in writing of the intended source of stone at least 60 days prior to use.

B. To determine the required quality, provide specific gravity, absorption, and durability tests of stone as follows:

Test	Test Method	Requirement
Apparent Specific Gravity	ASTM C127-01	2.50 min
Absorption	ASTM C127-01	4.2% max
Durability	ASTM D3744-97	52 min

C. Based on the formula below, absorption may exceed 4.2% if the durability absorption ratio (DAR) is greater than 10. Durability may be less than 52 if DAR is greater than 24.

Coarse Durability Index	DAR =	% Absorption + 1

PART 3 EXECUTION

3.01 INSTALLATION

A. Grade areas to a smooth surface. Place riprap directly on the prepared slope in a manner which will produce a well-graded mass with the minimum practical percentage of voids. Place the riprap to its full course thickness in one operation and in such a manner as to avoid displacing the underlying material. Place over a geotextile (see Section 02371).

END OF SECTION

SECTION 02612 - CORRUGATED METAL PIPE CULVERTS

PART 1 GENERAL

1.01 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

a. ASTM A760/A760M-01 -- Corrugated Steel Pipe, Metallic - Coated for Sewers and Drains

1.02 HAULING AND HANDLING

A. Haul and handle the pipe in such a manner as to avoid damage to the pipe surface. Do not use rope, cable, or chain slings for handling the pipe, but use nylon slings not less than 3 inches in width.

B. Replace and remove from the site of the work any pipe unit that, in the opinion of the Government Inspector, is damaged beyond repair in hauling, handling, or otherwise.

PART 2 PRODUCTS

2.01 MATERIALS

A. Corrugated Metal Pipe - Provide galvanized steel 16-gauge pipe in accordance with ASTM A 760 Type I.

B. Flared end sections

1. Prefabricated sections of standard manufacture.

2. Same metal as the pipe to which they are attached.

PART 3 EXECUTION

3.01 CORRUGATED METAL PIPE

A. Furnish and lay corrugated metal pipe for culverts where shown on the drawings. Furnish and lay the pipe complete with coupling bands, flared end sections, and joint materials.

3.02 EXCAVATION

A. Excavate the trench in which the pipe is to be laid to the established line and grade to provide a firm and uniform bearing for the entire length of the pipe. Where directed

to remove unsuitable foundation material, excavate the trench to a depth of 6 inches below the bottom of the pipe, and backfill with material approved by the Government Inspector. Compact the material to provide a firm and uniform bearing for the pipe.

3.03 LAYING

A. Lay corrugated metal pipe to the lines and grades shown on the drawings. Lay the pipe with outside laps of circumferential joints pointing upstream and with longitudinal joints at the sides. Draw all fastenings up tight. Lay the pipe in such manner that the departure from and return to established alignment and grade will not exceed 1/8 inch per foot of pipe but with not more than 1-inch total departure. Use coupling bands where necessary to join sections of pipe. Install the coupling bands properly, in a manner to ensure tight joints, with the joints between sections approximately at the center of the couplings. Install flared end sections in accordance with the manufacturer's instructions.

3.04 BACKFILL

A. As each unit of pipe is laid, tamp sufficient backfill material about the pipe to hold it rigidly in place until the joints are completed. After the joints have been completed, place and compact backfill in accordance with Section 02302. Insofar as practicable, obtain backfill material from material obtained in required excavations for pipe or from adjacent excavation.

B. Place backfill to the lines and grades shown on the drawings. As each pipe unit is laid, tamp sufficient backfill material about the pipe to hold it rigidly in place until the joints are completed. After the joints are completed, place backfill carefully and spread backfill in uniform layers. Backfill with rocks larger than 3" will not be allowed. Place backfill to about the same elevation on both sides of the pipe to prevent unequal loading and displacement of the pipe. Do not exceed a difference in elevation of the backfill on both sides of the pipe 6 inches at any time.

C. Place, moisten, and compact all material in backfill to be compacted as per Section 02302. Equipment travel over the pipe will not be permitted until backfill has been placed and compacted to the depth recommended by the pipe manufacturer, but not less than 1 foot above the top of the pipe. Prevent damage from construction equipment loads by providing adequate earth cover over pipe.

END OF SECTION

SECTION 02742 - BITUMINOUS SURFACING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. 3-inch bituminous surfacing:
2. Furnishing and applying the tack coat.
3. Wheel stops:

B. Prepared subbase is specified in Section 02316.

1.02 REFERENCES

A. Utah Department of Transportation (UDOT)

1. UDOT Specifications Standard Specifications and Standards
   a. Maintain a copy of UDOT Specifications at jobsite during paving work.

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 02742-1, Mix Design Data.

C. RSN 02742-2, Certifications:

1. Manufacturer's certificate of compliance for aggregate and bituminous materials in accordance with UDOT Specifications, Section 02741.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Comply with UDOT Specifications weather limitations for asphaltic concrete placement.

PART 2 PRODUCTS

2.01 AGGREGATE BASE

A. UDOT Specifications, Sieve Size 1/2 inch.

2.02 ASPHALTIC CONCRETE

A. UDOT Specifications, Section 02745 with Grade AC-10 asphalt cement.

2.03 TACK COAT

A. Emulsified asphalt as per UDOT Specifications, Section 02745.

2.04 WHEEL STOPS

A. 2500 psi compressive strength precast, air-entrained concrete, approximately 6 inches high, 9 inches wide, and 96 inches long. Provide chamfered corners and drainage slots on underside.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

A. Remove loose material from compacted subbase surface immediately before paving.

B. Locate, reference, and protect monuments, curb and gutter, and other components affected by the paving operations.

C. Cutting: Cut edges of road by sawing or other approved methods that leave a straight uniform edge.

D. Cleaning: Prior to tack coat, clean surfaces to receive overlay with power brooms or hand sweeping so that the surface is free from all foreign substances including dirt, water and oil.

E. Tack Coat: Spread by means of a calibrated distributor spray bar. Apply at rate of 0.20 to 0.50 gallons per sq. yd. Do not allow traffic on the tack coat.

F. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.02 PLACING, COMPACTING, AND FINISHING

A. Base Course: Place, compact, and finish aggregate base course in accordance with Section 02316.

B. Asphaltic Concrete Paving: Place, finish, and compact asphaltic concrete in accordance with UDOT Specifications, Section 02741.

3.03 MAINTENANCE

A. Maintain paved areas until acceptance of work by Government.

3.04 WHEEL STOPS

A. General: Secure wheel stops to hot-mixed asphalt surface with not less than two 3/4 inch diameter steel dowels (No. 6 rebar). Length of dowel shall be 24". Drive dowel down till flush with top of wheel stop.

END OF SECTION

SECTION 02763 - PAINTED TRAFFIC LINES AND MARKINGS

PART 1 GENERAL

1.01 REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. AASHTO M 248-91(2000) Ready-Mixed White and Yellow Traffic Paints

B. Federal Highway Administration (FHWA)

1. FHWA MUTCD Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 Edition with Revision No. 1, July 21, 2004 (http://mutcd.fhwa.dot.gov)

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 02763-1, Certification:

1. Manufacturer's certification that paint meets specified requirements.

C. RSN 02763-2, Instructions:

1. Paint manufacturer's environmental, surface preparation, and application instructions.

1.03 ENVIRONMENTAL REQUIREMENTS

A. Apply when surface and weather conditions are favorable.

B. Do not apply when air or surface temperature is below 40 degrees F.

C. Comply with paint manufacturer's environmental restrictions.

PART 2 PRODUCTS

2.01 TRAFFIC PAINT

A. AASHTO M 248, Type S, N, or F.

B. Colors: White and yellow.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean and dry surface in accordance with paint manufacturer's instructions.

3.02 APPLICATION

A. Apply standard lines and markings in accordance with FHWA MUTCD.

B. Apply paint at coverage rate of 100 square feet per gallon, maximum, in accordance with manufacturer's instructions.

C. Apply with clean edges free of overspray and line width within plus or minus 1/4 inch of designated width.

3.03 PROTECTION

A. Protect markings from traffic and damage until dry.

END OF SECTION

SECTION 02822 - CHAIN LINK FENCE

PART 1 GENERAL

1.01 REFERENCES

A. ASTM International (ASTM)

1.	ASTM A 392-03	Zinc-Coated Steel Chain-Link Fence Fabric
2.	ASTM A 824-01	Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
3.	ASTM C 33-03	Concrete Aggregates
4.	ASTM F 567-00	Installation of Chain-Link Fence
5.	ASTM F 626-96a(2003)	Fence Fittings

B. Chain Link Fence Manufacturers Institute (CLFMI)

1.	CLFMI 2445-97	Product Manual (www.chainlinkinfo.org/pdfs/manual)

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 02822-1, Certifications and Samples:

1. Manufacturers' certification that fence materials, fittings, and accessories meet specified requirements.
2. Include manufacturers' names and product designations and specified product standards in the certification.
3. Samples and color selection for privacy slats.

PART 2 PRODUCTS

2.01 CHAIN LINK FABRIC

A. Zinc-Coated Steel Fabric: ASTM A 392

1. Size of mesh: 2-inch.
2. Coat before weaving.
3. Diameter of coated wire: 0.148 inch (no. 9-gauge)
4. Coating weight: Class 1

2.02 INTERMEDIATE POSTS

A. CLFMI 2445, Type I round pipe.

2.03 TERMINAL POSTS, BRACES, AND RAILS

A. CLFMI 2445, Type I round pipe.

2.04 TENSION WIRE

A. Zinc-coated steel marcelled tension wire: ASTM A 824

1. Coating: Type II, Class 4.

2.05 FITTINGS

A. Post and Line Caps, Rail and Brace Ends, Braces, and Bands: ASTM F 626, zinc-coated steel or zinc-coated cast iron.

B. Toprail Sleeves, Tension Bars, and Truss Rods: ASTM F 626, zinc-coated steel.

2.06 PRIVACY SLATS

A. Vinyl or HDPE

2.07 CONCRETE

A. In accordance with Section 03300 - Cast-In-Place Concrete.

B. Fine and coarse aggregates: ASTM C 33.

1. Coarse aggregate size, maximum: 3/4-inch.

C. Compressive strength at 28 days, minimum: 2,500 lb/in^2.

PART 3 EXECUTION

3.01 PREPARATION

A. Clear and remove trees, brush, ground surface irregularities, and other obstacles which interfere with proper erection of fence in advance of starting fencing work.

3.02 INSTALLATION

A. Erect chain-link fence at locations shown on drawings.

B. Install chain link fences of heights shown on drawings.

C. Install chain link fence in accordance with ASTM F 567 and CLFMI 2445, except as shown on the drawing or specified.

D. Terminal posts:

1. At vertical and horizontal changes in alignment equal to or greater than 30 degrees.

3.03 REPAIR

A. Repair damage to zinc coatings with commercial zinc-rich priming paint.

END OF SECTION

SECTION 02871 - GRILLS AND FIRERINGS

PART 1 GENERAL

1.01 SUBMITTALS

A. Prior to purchase, submit in accordance with Section 01330 the following:

1. RSN 02871-1, Manufacturer's data.

PART 2 PRODUCTS

2.01 GRILLS

A. Group Shelter Grills – Model D2-48 pedestal grill as manufactured by R.J. Thomas manufacturing company, Cherokee, Iowa, (phone (714) 225-5115) or approved equal. Complete fixture to be finished with high temperature, flat black paint, rather than the typical factory finish of aluminum paint.

2.02 FIRERINGS

A. Accessible firerings - Model FS-30/24/PA as manufactured by R.J. Thomas manufacturing company, Cherokee, Iowa, (phone (714) 225-5115) or approved equal.

1. Every campsite will have an accessible firering.

B. Concrete as per Division 3.

PART 3 EXECUTION

3.01 INSTALLATION

A. Set steel legs in concrete footings.

B. Install plumb and as per manufacturer's recommendations.

END OF SECTION

SECTION 02872 - OUTDOOR TABLES

PART 1 GENERAL

1.01 SUBMITTALS

A. Prior to purchase, submit in accordance with section 01300 the following:

B. RSN 02872-1

1. Manufacturer's data.
2. Shop drawings

PART 2 PRODUCTS

2.01 SERVING TABLES

A. Serving Tables - Model APTX3/P/G-10AL and model APTX/P/G-8AL as manufactured by R.J. Thomas manufacturing company, Cherokee, Iowa, (phone (714) 225-5115) or approved equal. The tables shall have the following features.

1. 8' and 10’ long tables.
2. 3" x 6" x 1/8" wall rectangular structural steel tubing vertical legs, hot-dip galvanized, three legs per table.
3. No seats.
4. Firmly anchored into the concrete via a welded base and four anchor bolts.

PART 3 EXECUTION

3.01 INSTALLATION

A. Anchor steel legs in thickened concrete slab.

B. Install plumb and as per manufacturer's recommendations.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 REFERENCES

A. ASTM International (ASTM)

1.	ASTM C 31/C 31M-03a	Making and Curing Concrete Test Specimens in the Field
2.	ASTM C 33-03	Concrete Aggregates
3.	ASTM C 39/C 39M-05	Compressive Strength of Cylindrical Concrete Specimens
4.	ASTM C 42/C 42M-04	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
5.	ASTM C 94/C 94M-04a	Ready-Mixed Concrete
6.	ASTM C 114-05	Chemical Analysis of Hydraulic Cement
7.	ASTM C 143/C 143M-05a	Slump of Hydraulic-Cement Concrete
8.	ASTM C 150-05	Portland Cement
9.	ASTM C 171-03	Sheet Materials for Curing Concrete
10.	ASTM C 231-04	Air Content of Freshly Mixed Concrete by the Pressure Method
11.	ASTM C 260-01	Air-Entraining Admixtures for Concrete
12.	ASTM C 309-03	Liquid Membrane-Forming Compounds for Curing Concrete
13.	ASTM C 494/C 494M-05	Chemical Admixtures for Concrete
14.	ASTM C 618-05	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
15.	ASTM C 1017/C 1017M-03	Chemical Admixtures for Use in Producing Flowing Concrete
16.	ASTM C 1602/C 1602M-05	Mixing Water Used in the Production of Hydraulic Cement Concrete
17.	ASTM D 1751-04	Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
18.	ASTM D 1752-04a	Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

B. Bureau of Reclamation (USBR)

1.	USBR M-47	Standard Specifications for Repair of Concrete, August 1996
2.	USBR Concrete Manual	Concrete Manual, Eighth Edition, Revised Reprint, 1981

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01330 - Submittals.

B. RSN 03300-1, Material Approval Data:

1. Name and manufacturer of each cementitious material, aggregate source, admixture, curing compound, and joint filler.

   a. The Government reserves the right to require submission of manufacturer's test data and certification of compliance with specifications.

   b. The Government reserves the right to require submission of samples of concrete materials for testing before or during use in concrete.

2. Cementitious materials certifications and test reports:

   a. Manufacturer=s certification and test reports for each lot from which shipments are drawn.

      1) Certify materials were tested during production or transfer in accordance with specified reference specification.

      2) Submittal of certification and test reports shall not relieve Contractor of responsibility for furnishing materials meeting specified requirements.

C. RSN 03300-1, Mix Design:

1. Mix Design: For each concrete mix design.

D. Concrete Repair: In accordance with USBR M-47.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Furnish batch ticket with each batch of concrete in accordance with ASTM C 94. Deliver ticket to Inspector at jobsite during batch delivery.

B. Sponge Rubber Joint Filler Storage:

1. Store in protected area at temperature of 70 degrees F (21 degrees C) or less.

2. Do not expose to direct sun.

PART 2 PRODUCTS

2.01 CEMENTITIOUS MATERIALS

A. Cementitious Materials Options:

1. Specified portland cement plus 20 percent plus or minus 5 percent by weight specified pozzolan.

B. Portland Cement:

1. ASTM C 150, Type .
2. Meet equivalent alkalies requirements of ASTM C 150 - Table 2.
3. Meet false-set requirements of ASTM C 150 - Table 4.

C. Pozzolan:

1. ASTM C 618, Class F, except,
   a. Sulfur trioxide, maximum: 4.0 percent.
   b. Loss on ignition, maximum: 2.5 percent.
   c. Test for effectiveness in controlling alkali-silica reaction under optional physical requirements in Table 2 of ASTM C 618. Use low-alkali cement for test.
   d. Does not decrease sulfate resistance of concrete by use of pozzolan.
      1) Demonstrate pozzolan will have an "R" factor less than 2.5.
      2) $R = (C-5)/F$
      3) C: Calcium oxide content of pozzolan in percent determined in accordance with ASTM C 114.
      4) F: Ferric oxide content of pozzolan in percent determined in accordance with ASTM C 114.

2.02 WATER

A. ASTM C 1602, including optional requirements of Table 2.

2.03 AGGREGATE MATERIALS

A. Fine aggregate: ASTM C 33.

B. Coarse Aggregate: ASTM C 33, Size No. 57 or 467.

2.04 ADMIXTURES

A. Air-Entraining Admixture:

1. ASTM C 260.

2. Use a neutralized vinsol resin formulation for air-entraining admixture used with ASTM C 494, Type F or G; and ASTM C 1017, Type I or II chemical admixtures.

B. Chemical Admixtures:

1. Allowable Chemical Admixtures:

a. ASTM C 494, Type A, D, F, or G.

b. ASTM C 1017, Type I or II.

c. ASTM C 494, Type C and E, provided they do not contain chlorides.

2. Do not use chemical admixtures which contain more than 0.1 percent chloride, by weight.

2.05 CURING MATERIALS

A. Water: ASTM C 1602, including optional requirements of Table 2.

B. Curing Compound: ASTM C 309.

C. Polyethylene Film: ASTM C 171, white opaque.

2.06 ACCESSORIES

A. Bituminous Joint Filler: ASTM D 1751.

B. Sponge Rubber Joint Filler:

1. ASTM D 1752, Type I, except as specified.

2. Test Specimen Compression Load: 50 to 150 lb/in^2.

C. Joint Filler Adhesive: Nonbituminous adhesive recommended by filler manufacturer.

2.07 MIX

A. The Contractor shall design and adjust concrete mix.

1. The Government reserves the right to adjust mix proportions when need for adjustment is indicated by results of materials testing.

a. Adjustment of mix proportions by the Government will be in accordance with USBR Concrete Manual.

B. Use one of specified cementitious materials options.

C. Net Water-Cementitious Materials Ratio: 0.45, maximum, by weight.

D. Slump: In accordance with ASTM C 143.

1. Concrete in Slabs: 1 to 3 inches at placement, except as specified.

2. Other Concrete: 2 to 4 inches at placement, except as specified.

3. When first mixed, maximum: 5 inches.

4. Concrete with ASTM C 1017, Type I or II chemical admixtures: Use slump appropriate for placing conditions.

E. Compressive Strength:

1. At 28 days, minimum: 4,000 lb/in^2.

a. Acceptance criteria:

1) In accordance with ASTM C 94, plus the following

a) 90 Percent of test cylinders exceed specified compressive strength at 28 days.

2. Quality assurance:

a. In addition to the Contractors quality control program, the Government will test compressive strength in accordance with ASTM C 31 and ASTM C 39 for 6- by 12-inch cast cylinders.

b. Compressive strength may also be determined by Government in accordance with ASTM C 42 for concrete cores.

1) Concrete in an area represented by core tests will be considered structurally adequate when average compressive strength of three cores is equal to at least 3,400 lb/in^2 and no single core has a compressive strength of less than 3,000 lb/in^2.

F. Air Entrainment: 4 to 6 percent air by volume of concrete as discharged at placement, in accordance with ASTM C 231.

2.08 BATCHING, MIXING, AND TRANSPORTING

A. Manufacture and deliver in accordance with ASTM C 94.

B. Prevent appreciable segregation of ingredients, or slump loss exceeding 2 inches in concrete delivered to work.

2.09 CONCRETE TEMPERATURE

A. Concrete temperature at placing**:** 50 to 90 degrees F (10 to 32 degrees C).

PART 3 EXECUTION

3.01 PREPARATION

A. Remove standing water, mud, and debris from foundation surfaces to be covered by concrete.

B. Prepare rock surfaces free from oil, objectionable coatings, and loose, semidetached, and unsound fragments. Immediately before placement of concrete, wash rock surfaces with an air-water jet and dry to a uniform surface-dry condition.

C. Prepare earth foundations free from frost or ice.

D. Thoroughly moisten surfaces of absorptive foundations to be covered with concrete so that moisture will not be drawn from fresh concrete.

E. Clean, roughen, and surface dry surfaces of construction joints to be covered with fresh concrete.

1. Remove laitance, loose or defective concrete, coatings, sand, curing compound, and other foreign material.

2. Wet sandblast or bushhammer surface, wash thoroughly, and surface dry immediately before placement of adjoining concrete.

3. Do not use a mortar layer on construction joints.

3.02 PLACING

A. Do not use aluminum pipes and chutes for placing or pumping concrete.

B. Do not retemper concrete.

C. Do not use concrete which has become so stiff that concrete cannot be properly placed.

D. Place formed concrete in continuous, approximately horizontal layers. Do not exceed 20 inches in depth of layers.

E. Vibrate concrete until concrete has been consolidated to maximum practical density, is free from pockets of coarse aggregate, and closes snugly against surfaces of forms and embedded materials.

3.03 FINISHING

A. All finishes shall be made integral without use of cement or other dusting materials. Concrete shall be struck to proper grade, and coarse aggregate shall be forced below surface by tamping or floating and surface finished with steel trowels. Exterior slabs shall be finished with a steel trowel and then receive a light broom finish.

B. Do not release or remove forms for at least 48 hours after placing concrete. At formed surfaces, remove ties, fill form tie holes and imperfections with dry cement mortar, remove fines, and then "sack" or finish to match existing adjacent surfaces.

C. Broom Finishes, Exterior Flatwork

1. Broom finish exterior slabs.

2. Round edges including edges formed by expansion joints.

3. Remove edger marks.

D. Finish concrete in presence of Government inspector unless inspection is waived in each specific case.

3.04 CURING

A. Water Curing:

1. Keep concrete surface wet for 14 days, minimum, from time concrete has attained sufficient set to prevent detrimental effects to surface.

2. Cure methods:

a. Water-saturated material.

b. System of perforated pipes, mechanical sprinklers, or porous hose.

c. Other methods which will keep surfaces wet.

d. Subject to approval by the Government.

B. Curing with Curing Compound:

1. Apply to concrete surface to provide a water-retaining film. Reapply as necessary to maintain a continuous, water-retaining film on surface for 28 days.

2. Thoroughly mix compound and spray apply in one coat to provide a continuous, uniform film over surface.

3. Do not exceed coverage rate of 150 square feet per gallon. Decrease coverage rate on rough surfaces as necessary to obtain required continuous film.

4. Ensure ample coverage on edges, corners, and rough surfaces.

5. Spray equipment and equipment performance will be subject to approval by the Government. Repair or replace equipment when directed by the Government.

6. Use personnel qualified in using specified spray technique, as determined by the Government, to perform application.

C. Polyethylene Film Curing:

1. Thoroughly moisten concrete surface by lightly spraying with water as soon as concrete has hardened sufficiently to prevent damage.

2. Completely cover concrete surface with polyethylene film to provide an airtight, water-retaining film over entire surface.

3. Lap edges of polyethylene sheets to seal adjacent sheets.

4. Place tightly against concrete surface at extreme edge of curing area.

5. Secure film to withstand wind and prevent circulation of air inside curing film.

6. Keep surface covered for 14 days, minimum.

3.05 PROTECTION

A. Protect concrete from damage until final acceptance by Government.

1. Do not load, remove forms or shoring, or backfill against concrete until concrete has gained sufficient strength to safely support its weight and imposed loads.

2. Protect fresh concrete against erosion from rain, hail, sleet, or snow; contamination from foreign materials; and damage from foot traffic until the concrete has hardened.

3. Protect concrete from heavy foot traffic and other construction activities by covering with plywood or other suitable material. Remove and dispose of temporary covering when no longer required.

B. Protect concrete when freezing temperatures are imminent:

1. Maintain concrete at a temperature of 50 degrees F (10 degrees C) or greater for 72 hours, minimum, after placement. Vent heater and prevent concrete from drying where artificial heat is employed.

2. Protect concrete from freezing during water curing. After discontinuance of water curing, maintain at a temperature of 50 degrees F (10 degrees C) or greater for next 72 hours.

3. Discontinue protection against cold weather such that the drop in temperature of the concrete will be gradual and will not exceed 5 degrees F per hour and 40 degrees F in 24 hours.

3.06 REPAIR

A. Repair concrete in accordance with USBR M-47.

B. Use repair or replacement method directed by the Government.

END OF SECTION

SECTION 13121 - PRE-ENGINEERED VAULT TOILETS

PART 1 GENERAL

1.01 WORK INCLUDED

A. This item includes the following:

1. Preparing the site and coordination with the supplier of pre-engineered vault toilet restrooms.

PART 2 PRODUCTS

A. CXT vault toilets provided by others.

PART 3 EXECUTION

3.01 PREPARATION AND COORDINATION WITH SUPPLIER

A. Prepare the site and coordinate with the supplier for a successful installation.

B. Do not install site components that may be damage by cranes and other installation equipment until restrooms are in place.

C. The supplier will excavate and set the vault toilets.

END OF SECTION

SECTION 13641 – SOLAR POWERED GATE OPERATORS

PART 1 GENERAL

1.01 SUMMARY

A. Includes But Not Limited To

1. Providing solar powered gate operating system.
2. Providing appropriate battery - +12v dc, maintenance free, lead acid battery rated at a minimum of 33-amp hours.
3. Providing one vehicle exit sensor compatible with solar powered gate operating system.
4. Providing sensor safety loops compatible with solar powered gate operating system.
5. Furnishing and installing all brackets, fastenings, bolts, nuts, lockwashers, and other accessories, and drilling holes as required for mounting or installing solar powered gate operating system.
6. Additional required wiring.
7. Testing of completed gate system.

B. Components shall be connected, energized, and properly functioning in order for payment to take place.

1.02 SUBMITTALS

A. RSN 13641-1, Submit original manufacturers' product information, including installation instructions.

1.03 QUALITY ASSURANCE

A. Warranty

1. Contractor shall provide products and labor warranty of one year from solar powered gate operating system installation completion.

B. Requirements of Regulatory Agencies

1. NEC and local ordinances and regulations shall govern unless more stringent requirements are specified.
2. Material and equipment provided shall be new, meet standards of NEMA or UL, and bear their label wherever standards have been established and label service is available.

PART 2 PRODUCTS

2.01 SOLAR GATE OPERATOR

A. Provide Patriot Solar Gate Operators, as manufactured by US Automatic LTD, or approved equal. The units have the following features:

1. 6 Watt solar panel.
2. ETL certified to UL325 Standards.
3. Selectable push or pull to open application.
4. On board open/close command button.
5. Built in timer to close.
6. Fast open or close cycle time 12 seconds.
7. Accessory power output protected by auto resetting fuses.
8. Danaher 24” Linear Actuator.

B Provide one vehicle exit sensor compatible with solar powered gate operating system.

C Provide safety loops compatible with solar powered gate operating system.

PART 3 EXECUTION

3.01 EXAMINATION

A. Confirm dimensions, ratings, and specifications of equipment to be installed and coordinate these with site dimensions and with other Sections.

3.02 INSTALLATION

A. Install solar gate operator as per manufacturers’ specifications.

B. Gates shall be installed such that they open and close independent of each other. Gates shall open away from vehicle directional flow.

C. Install vehicle exit sensor as per manufacturers’ specifications in the campground exit lane.

D. Install safety loops as per manufacturers’ and solar powered gate operating system recommendations in the entrance and exit lanes.

E. Installed such that the toll booth operator maintains control of campground entrance.

3.03 FIELD QUALITY CONTROL

A. Site Tests

1. Test systems and demonstrate equipment as working and operating properly. Notify the Government Inspector prior to test. Rectify defects at no additional cost to the Government.

END OF SECTION

SECTION 13650 – PHOTOVOLTAIC COLLECTORS

PART 1 GENERAL

1.01 SUMMARY

A. Includes But Not Limited To

1. Providing photovoltaic panels.
2. Providing battery/ies
3. Providing charge controller
4. Providing inverter of adequate size to power the cash register (44 Watts minimum) and a small desk fan.
5. Providing a complete grounding system.
6. Providing electrical conduit.
7. Furnishing and installing all brackets, fastenings, bolts, nuts, lockwashers, and other accessories, and drilling holes as required for mounting or installing electrical materials.
8. Electrical design where required by qualified professional.
9. Providing the ability to switch back and forth between the current generator system and the new photovoltaic system. The generator system is needed to run the air-conditioning unit in late summer.
10. Receptacles.
11. Wiring.
12. Lights.
13. Testing of complete electrical system.

B. Components shall be connected, energized, and properly functioning in order for payment to take place.

1.02 SUBMITTALS

A. See Section 01330.

B. RSN 13650-1, Submit photovoltaic power system design.

1. Photovoltaic power system design shall meet the following requirements.
    a. Solar powered components shall provide sufficient capacity for autonomous functionality of 24 hours per day, 7 days per week, during seasonal operations.

C. RSN 13650-2, Submit shop drawings for photovoltaic power system.

D. RSN 13650-3, Submit names of licensed electricians that will be working on the project.

1.03 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies

1. NEC and local ordinances and regulations shall govern unless more stringent requirements are specified.
2. Material and equipment provided shall be new, meet standards of NEMA or UL, and bear their label wherever standards have been established and label service is available.

B. Warranty

1. Contractor shall provide products and labor warranty of one year from system completion.

PART 2 PRODUCTS

2.01 ELECTRICAL COMPONENTS

A. Photovoltaic Panel/s

1. Panel/s shall be 12v industry standard item/s.

B. Battery/ies

1. Battery/ies shall be solar industry standard +12v dc, maintenance free, deep cycle solar rated, free lead acid batteries rated at a minimum of 33-amp hours.

C. Charge Controller

1. Charging control system shall be solar industry item Maximum Power Point Regulator (MPPR), or approved equal.

D. Light fixtures

1. Provide the appropriate number of 18-25 Watt Compact Fluorescent Light bulb fixtures (CFL’s) –each approximately equivalent to 75 Watt incandescent light bulbs.

E. Inverter

F. Other components specified by the design professional.

PART 3 EXECUTION

3.01 EXAMINATION

A. Confirm dimensions, ratings, and specifications of equipment to be installed and coordinate these with site dimensions and with other Sections.

3.02 FIELD QUALITY CONTROL

A. Site Tests

1. Test systems and demonstrate equipment as working and operating properly. Notify the Government Inspector prior to test. Rectify defects at no additional cost to the Government.

END OF SECTION

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.01 REFERENCES

A. American Society of Mechanical Engineers (ASME)

1. ASME BPVC-IX 2004 Boiler and Pressure Vessel Code, Section IX – Welding and Brazing Qualifications

B. ASTM International (ASTM)

1. ASTM A 123/A 123M-02 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. ASTM A 153/A 153M-05 Zinc Coatings (Hot-Dip) on Iron and Steel Hardware

C. Institute of Electrical and Electronics Engineers (IEEE)

1. IEEE C2-2002 National Electrical Safety Code (NESC)

D. National Fire Protection Association (NFPA)

1. NFPA 70-2005 National Electrical Code (NEC)

1.02 QUALIFICATIONS

A. Welder Qualifications: In accordance with ASME BPVC-IX.

1.03 EXTRA MATERIALS

A. Provide to Government special tools and equipment necessary to properly install, adjust, test, and check operation of electrical equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Conform to NFPA 70 and IEEE C2.

B. Galvanize mounting brackets, bolts, nuts, and washers for major items of electrical equipment such as insulators, batteries, battery chargers, and inverters in accordance with ASTM A 123 and A 153.

C. Provide galvanized steel or non-corrosive metal for mounting bolts, nuts, and washers for minor items of electrical equipment and lighter weight items. Do not use cadmium-plated mounting hardware.

D. Change designs as required where Contractor-furnished electrical equipment and materials differ in size, type, ratings, or other physical properties from designs in these specifications. The Government will approve changes at Contractor's expense, unless Contractor can demonstrate that changes are necessary regardless of manufacturer.

E. Provide special tools and appliances furnished by manufacturer for maintenance and adjustment of manufacturer's electrical equipment.

PART 3 EXECUTION

3.01 INSTALLATION

A. Do not install electrical equipment until approval drawings and data for associated equipment have been approved by Government.

B. Electrical Installations, Assembly Operations, and Adjustments: Comply with NFPA 70 and IEEE C2.

C. Make electrical installations complete and ready for service.

D. Install electrical equipment in accordance with directions furnished by manufacturer's instruction books.

E. Tighten nuts used in electrical equipment assembly with torque wrenches to torque values recommended by equipment manufacturers.

F. Drill holes in bolted steel structures and provide fastenings required for mounting or installing electrical equipment and materials.

G. Installation of electrical equipment includes:

1. Leveling and grouting channel bases.
2. Drilling holes, furnishing hardware, and assembling components to each other.
3. Furnishing materials for and making all connections correctly in accordance with final wiring diagrams.
4. Tagging wires and cables at each end.

H. Grout electrical equipment installed on concrete foundations in place to provide full and even bearing.

3.02 REPAIR

A. Repair damaged painted surfaces of equipment to match original finish.

3.03 FIELD QUALITY ASSURANCE

A. Government will inspect the solar operated gates and the photovoltaic electrical system for the fee station during construction. Acceptance of equipment will be made after equipment is operational.

END OF SECTION